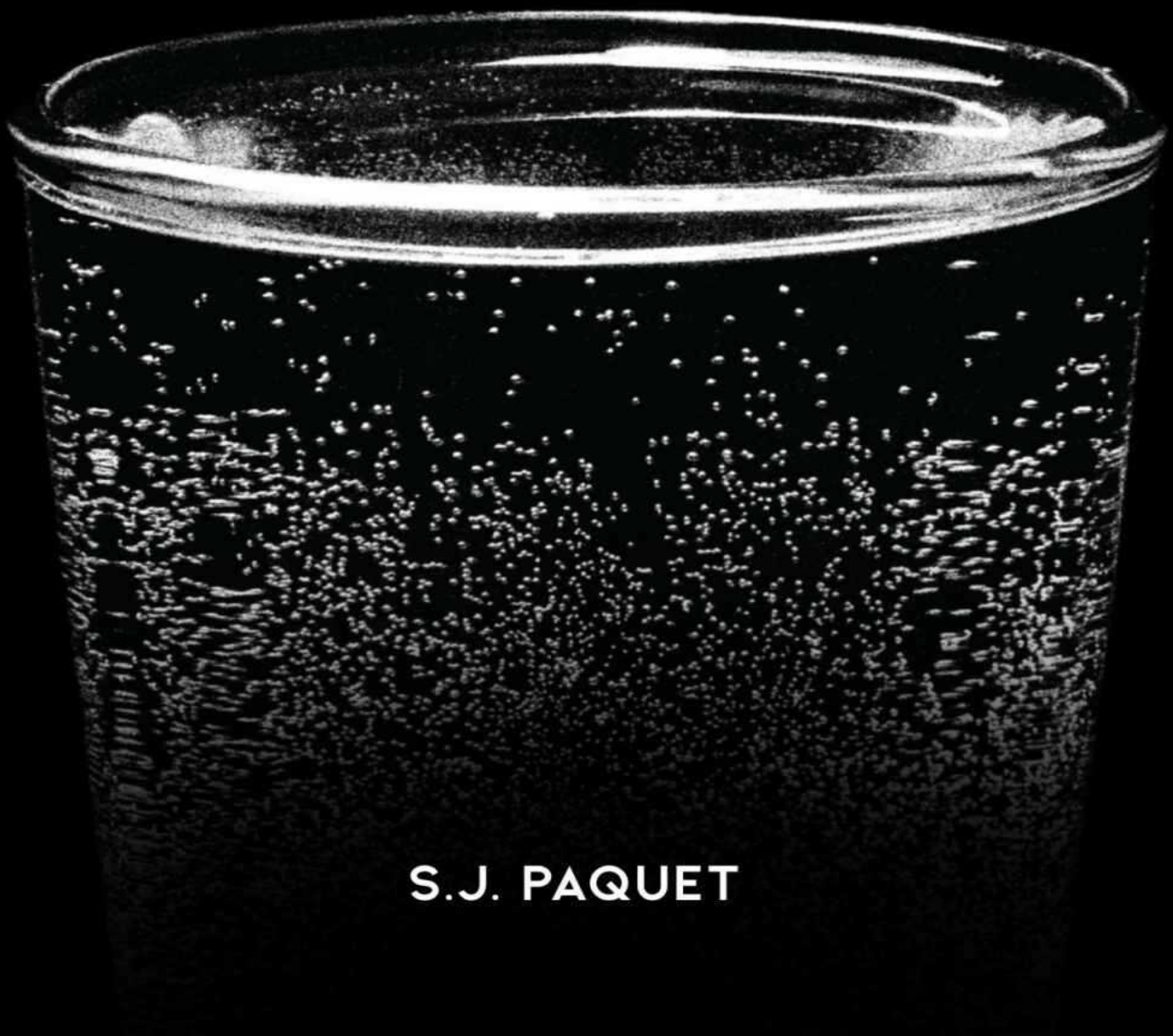
THE INFLAMMATION GAME

ANTI-INFLAMMATORY LIFESTYLE CHOICES FOR A PAIN-FREE, HEALTHY LIFE



S.J. PAQUET

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PAQUET PUBLISHING

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Inflammation Game Scorecard

Introduction

Within each of us is a capacity to heal that is both ancient and profound. Our bodies are organic machines built with systems of renewal incorporated into every cell. Modern science and medicine have come a long way toward understanding the systems at play in our body's healing ability and toward discovering the ways in which we can encourage or discourage these processes. In recent years the foundations of optimum health have been revealed to be, in great part, connected with the workings of the body's inflammatory response systems. Inflammation sits at the core of so many, if not most of our common health issues. Understanding this, a good deal of current medical research aims to shed light on both the causes and effects of chronic inflammation and the vast spectrum of ailments associated with it.

With this in mind it's a comfort to know that at a cellular level it's possible, through different techniques, to defend ourselves from this major contributor to the pain and disease that accumulates throughout life.

Despite the vivacity and dexterity we may enjoy during our youth, our bodies eventually come up against things that can make us feel like we are losing that vital health and nimbleness. We may experience illness or injury, expediting that negative sensation.

Whether motivated by the idea of lessening pain or other symptoms of inflammation, or to decrease the probability of acquiring those ailments and diseases associated with

inflammation, the entire body can benefit from taking anti-inflammatory action.

Reducing inflammation can positively affect the entire body in so many ways, and many anti-inflammatory practices are simple to adopt; that is, once we truly decide to take action to improve our health daily.

I certainly recall the vigor and ease of my body during my youth, and perhaps you also remember the feeling of being pain-free, when all the parts of your limbs were fresh and unfettered, before life itself (and our environment) started to bear down. With age, as our bodies start to experience limitations and lingering maladies, it is easy to feel as though we have lost control of our health. It is easy to think that we are subject to our afflictions, and that we must learn to just accept these things with age. However, surrendering to the idea of inevitable pain and suffering is also a self-fulfilling prophecy. Consider instead that perhaps “the way things are” does not have to be the final score.

With some knowledge, guidance, and the right mindset, we can start simple practices that will produce change with just a bit of effort each day. Change in pain levels, a change in energy, and ideally a change in overall health and wellness. Instead of a slow, steady increase in bodily discomforts, it’s possible to experience a reduction in them. Depending on the methods used and the frequency of these practices, we can encourage the healing of chronic issues within the body. It is possible to achieve relief and bring about life-changing effects.

I have definitely navigated my own journey of interrupted health, mostly beginning with an injury to my Achilles tendon. Before this event I had had some discomforts, but my body was strong, and I had not had to deal with any major illness or injury. Since then, it has been a long road of recovery and discovery.

I was working as an outdoor youth education teacher, living on-site with a large staff of highly energetic folks. In the evenings we would have time to do as we wished and often organized games in the site's gymnasium. One particular evening we were playing dodgeball, and I collided with another player as we jumped simultaneously for the ball. As we fell, his foot landed on my right calf with all his body weight, pushing my knee to the ground and pressing through the muscle to the bone. Shockingly, this stretched my tendon beyond its capacity, snapping it right off the base of my heel. It happened in a flash, and I knew instantly that my whole experience in my body was to be changed forever.

In surgery, doctors had to harvest a tendon from my big toe to patch the Achilles back to my heel. Post surgery I was immobile and it was months before I could bear significant weight.

During that time, I felt myself slipping into a dark mental space, driven by the pain of the injury itself, but hugely exacerbated by a deep sense of loss that I was also experiencing. I faced the loss of a lifestyle that I loved: one that had included hiking, rock climbing, wild foraging and many other outdoor activities. But this event sadly ended up also being one of the last straws in my already fragile marriage, and as I lay with my ankle propped up on pillows, it too crumbled away.

After many months on crutches, and more in a walking boot, then over a year using a cane, I had lost muscle, strength, and balance and was unable to endure normal activities. Suffering this injury prompted a feeling of fatigue and aging that I had not felt before.

What I know now is that I experienced a domino effect of inflammatory responses during that time: real trauma in the right foot and ankle, irritation in my joints from limited

movement, then ultimately stiffness and back pain resulting from the imbalance in my lower body. My nervous system was also experiencing heightened inflammation from the stress and grief I was feeling during those very hard couple of years, with divorce being listed as one of the most stressful things people can experience in their lives.

Our body systems are interconnected, and our physical experiences are not independent from our psychological ones, so it makes sense that if we are suffering mentally, we also suffer physically. When experiencing mental hardship it is also so easy to drift away from healthy habits, giving inflammation an opportunity to get out of hand and snowball into major problems. This is the point where I was, at about two years post-injury. I was miserable and I knew I needed to make a drastic change, because I could feel myself and my health spinning out of control.

Gratefully, I have been lucky enough in life to have many good friends, and they have offered a listening ear and some good advice in my times of need. During a call, it was a long-time friend from college who shared something that turned out to be the exact spark of inspiration that I needed to begin to pull out of my deep funk. She had been in years of her own recovery and had succeeded in finding a whole new sense of physical and mental balance by developing a steady, gentle “yin yoga” practice. She shared that she was following videos online by a woman who claimed to teach “yoga for real people”. My friend had been doing the classes at home in her living room.

The idea of not having to leave the house to do a yoga class was encouraging, and learning that there was perhaps a type of yoga that could cater to my very real limitations was alluring. Yoga is so often thought of as something only for very strong and flexible bodies. Though in my mind I had a desire to do yoga, I felt exactly the opposite of strong and

flexible, and furthermore I was scared to do anything that would risk re-injury. I was, however, desperate for some relief, and to get my active body back, so when she told me how gentle yet effective she had found these classes to be, I decided to give it a try.

I set up my yoga mat and laptop, found the website, chose a class that looked interesting, and pressed “play”. At that moment, for the first time since getting hurt, I felt like I was actively taking control of my body and my mental health.

It turned out that yin yoga was indeed accessible to me, with its extremely gentle and slow approach. The tension in my body immediately began to relax. As I practiced more, the teachings of yoga began to help my mind process what I had been through, and I began to see a better future for myself.

Looking back, I now see that this injury became a great teacher in my life, forcing me to accept and work through my limitations and face my problems. What seemed at first to be a hugely frustrating setback, turned out to be the key to learning how to best honor and nurture my body and spirit. The relief that washed over me when I practiced yoga encouraged the belief that I could get my mobility and quality of life back on track. When I was diligent with this practice my ankle stiffness would lessen, I would stop walking with a limp, my back pain would subside, and my mood would be lifted. I also noticed when I did not practice yoga, when I would allow life to just get in the way, my ankle and spine would seize back up, and I would struggle mentally.

Keeping a steady yoga practice is a challenge in and of itself, for it requires slowing down, turning off the distractions of everyday life, and spending time in this inwardly-focused way. I have certainly experienced many times when I simply have been unable to make my yoga

practice happen regularly enough to feel good all the time. To feel better more consistently, I knew I should be implementing discipline in other areas of my life, as well, and diet and nutrition were staring me down.

One afternoon I ran into a neighbor at the local food co-op, and she began chatting excitedly with me about a diet that she was trying: one which omitted both sugar and wheat products completely from the menu. It was before the terms “Paleo” and “Keto” had become mainstream, and the simplicity of a diet founded on avoiding just these two highly processed ingredients intrigued me. I ended up joining her, and with the support and accountability that doing this together provided, I stayed consistent for about 10 months. My hunger levels evened out and I noticed that I had more energy.

I lost 20 pounds by my 40th birthday, which felt great. But after that, for whatever reason, I just didn’t stick to it. Once I stopped following the diet, it seemed impossible to get back on it. My old habits resumed, and within a year I was basically back to my regular struggle. With working a desk job and not getting adequate exercise, I found myself now in a vicious cycle of back and neck pain.

I would jar myself doing something very simple and end up suffering for weeks with a very limited range of motion and intense pain in my neck. What’s more, my pain response was starting to express itself in my mood. There was a spot along my route to work that required me to first look back over my right shoulder to take a left-hand turn. Day after day this action sent a shooting pain up into the base of my head, triggering a sense of raw anger that had no logical place to go, so I was internalizing that emotion over and over.

One day, a friend I’d known as a teenager contacted me. She had moved to the Pacific Northwest, gotten trained in

massage therapy, and was deeply connected to the wellness community there. As we caught up over the phone, she told me she was starting a new venture as a distributor for a hemp-based CBD oil product. She personally knew a number of health practitioners who were using it on themselves—as well as their families and clients—and enjoying great success.

I had been reading about the pain-relieving and anti-inflammatory effects of CBD but had not ventured so far as trying a product myself. I definitely wanted to support my friend in her business, and was intrigued by her personal stories, so she popped a bottle in the mail and three days later I started taking hemp oil sublingually.

Less than a week in, something suddenly happened. I came to that spot on my drive to work, and twisted my neck to look for traffic. To my shock and delight, it didn’t hurt! I took my turn and felt a sudden wave of happiness in that place that had almost always been a place of misdirected anger. By two weeks in, the range of motion in my neck increased even more; I had the sensation that an entire accumulated lifetime of stiffness in my neck and upper back was dissolving away. I continued to use CBD hemp oil daily for about a year, despite the significant investment. However, it slowly began to wane in effectiveness for me, just as many medications will stop working as well with long-term use.

Knowing then that I couldn’t rely on CBD to be the sole answer in keeping me pain-free forever and, considering my struggles maintaining a strict diet and consistent daily yoga practice, I became aware that I personally needed a variety of resources—more like a toolbox of techniques—to help keep my various pains in check. I started to actively seek more ways to help myself feel better.

I tried topical Magnesium oil, which was recommended for my ankle and neck, but also had a surprising effect on my

hands. In order to apply the liquid to my ankle, I poured it into my hands first. As it penetrated my skin, it caused a tingling feeling in my finger joints, which then slowly seemed to decrease the swelling in my knuckles. Swelling and stiffness that had slowly accumulated over time in a way that made me believe I was perhaps in the early stages of arthritis. I had been enduring the discomfort, assuming nothing could be done for it.

I quickly learned how to easily make the liquid magnesium oil at home, and then shared some with an elderly local friend who suffers terribly from advanced rheumatoid arthritis. Within a week of daily use the effect was visible, and within a few more weeks even greater: the swelling in her wrist diminished more than half in size from something that previously resembled a softball. She started to use it for her ankles and legs, claiming that it had relieved so much of her suffering. She calls me now whenever she runs out, and I re-up her supply with a quart jar more of the “magic oil”.

The next thing I encountered in my quest for pain relief was an Ayurvedic practice called oil pulling. A couple I knew were using this seemingly odd technique of swishing oil in their mouth every day for a period of time. He claimed that it was helping reduce sore joints and muscles, and she said it was improving sleep and helping with weight loss, not to mention aiding in dental hygiene. I tried it using sesame oil at first, and though it was somewhat challenging, I got used to the sensation and started to enjoy a real cleansing effect. Later I switched to coconut oil instead, which I liked better, but then have also experimented with using castor oil, which I find to be more tolerable than I expected. Each oil has a different consistency and flavor but the effects are similar—a feeling of deep cleansing.

With each new practice, I not only felt better physically, but also mentally stronger, to the point that I was ready to take

on a greater challenge. Inspired by one of my high school acquaintances' posts on social media, I got a subscription to a workout app with personal coaching and accountability groups that she was leading. I jumped headlong into daily workout routines, at home: not just yoga, but workout programs, something I had just never done before in my life. I went all in, and with the support of the group, I worked out regularly and consistently for, incredibly, close to three years. I gained a whole new sense of muscle awareness, core strength, balance, and greater mobility in the area of my injury and in my spine.

Exercising is a funny thing, however, for it can cause extreme soreness, especially when first starting out, or when returning to it after taking any time off. It makes it so challenging to stay on track and be consistent when workouts get waylaid by days of restricted movement and pain.

I was facing this very struggle at the time that I was exposed to something called the Wim Hof Method, a breathing technique meant to quickly oxygenate the bloodstream. The method stimulates the parasympathetic nervous system and thereby relieves stress from the sympathetic nervous system. Before or after workouts I'd play a video clip by this now globally trending, extreme sport athlete and health guru, Wim Hof. His 11–minute, focused breathing exercise proved to be really invigorating. Oxygenating the body by using this method gave me a different kind of energy, which I could feel lasting throughout the day. Notably too, Wim Hof promotes a practice of cold plunge therapy in conjunction with his breathwork, and though at first this didn't seem like something I would ever be up for, when I heard him speak of how, among other things, it relieved exercise-related muscle soreness, I decided I had to give it a try as well.

I have an old (broken) hot tub on my patio that I use in the summer as a cool-off pool between bouts of yard work and gardening, normally just during the hottest time of year. Filling it fresh and cold from the well, my local workout partner and I started to experiment with timed cold plunges right after our workouts together. Starting with 10 seconds (because that's really all we could handle), we submerged up to our necks in the fresh cold 50°F water. It was difficult at first, but by encouraging each other we learned to push through that initial shock and built our way up to our two-minute goal. Afterward, we both agreed that we were not experiencing any significant soreness, when based on past experience, we knew we absolutely should have been. The immediate sensation in our muscles and joints after plunging, even without using ice, felt like pure revitalization. It also took a long time to wear off, even hours later I had the feeling like my body was charged and regulated. On really hot days, my body temperature remained comfortably cool instead of being aggravated by the heat.

I now have two portable tubs for year-round use, sometimes hosting adventurous companions. I try to conjure up the motivation for cold plunging in different ways, sometimes successfully convincing coworkers and friends to join me in this experience. It's helpful to share the experience with another, encouraging each other to push past the mental obstacles that seem to exist every time. Each person who has joined me in the experience has shared in the bodily sensation, but more importantly there is a dissolving away of self-doubt, and a lasting feeling of triumph. I try to keep cold plunging in my routine, and it is yet another exercise that ebbs and flows, that inspires me and beckons me.

Current research points to chronic inflammation as a root cause or major player in possibly all disease. The implications of that being true is so profound when it comes to finding ways to care for ourselves. I've seen the effects of

inflammation pop up in my body so many times. The things that benefitted my health across the board were always things that reduce inflammation. After years of wanting to try, I even built up the willpower to attempt some periods of fasting, and found that above all, fasting holds the key to significantly reducing my inflammation-related symptoms. I also learned that many of the herbs I'd come to know throughout my life-long interest in herbalism and horticulture contain powerful anti-inflammatory properties. I realized that ultimately, even with so many things causing inflammation in our lives, there are also multitudes of ways to keep it at bay.

My search for knowledge resulted in a nice collection of varied tricks that help reduce the inflammation-related problems that I experience. However, I struggled to stay consistent over time. I bounced from one thing to another a lot. I would fall off a practice and pick up something else to compensate for it. I would get hooked on some new modality and forget to utilize the other techniques I'd been having success with. I was finding solutions but also beating myself up over my lack of dedication. I wanted to get into a mode where I could keep from falling out of my routines, and also stop stressing my way through my own health journey.

What became clear over time is that I needed to change how I viewed my self-care, and ultimately, myself. So I decided I would entertain a different perspective: If I had a day without progress, I gave that day great value in my mind as a rest day, and accepted and allowed it to happen very deeply. While enjoying the relaxation, I'd set my mind to wake the following day with the intention to rebound. This mindset helped me view my weak moments in a more positive light, which guided me toward feeling more positive in general, and not like a failure on my weaker days.

If I had a good day, I would magnify my accomplishments in my mind because they had taken effort, no matter how much or little. Even small efforts were big players in the way they would affect me, so I would celebrate them, sharing my successes with friends and family.

With this I discovered a most integral piece of my healing journey: the importance of mindset. Maintaining belief in my ability to succeed, through my weaker moments, helped guide me gently through those harder times. It helped me stick to good habits and feel a sense of continued progress. I was able to start to think more strategically, focusing on my strengths and finding ways to outmaneuver my weaknesses.

With a greater mental grasp on things, I realized that I could actually view my self-care to be more like a game, and that it could make things easier for me. After all, a game is not a chore, and it is not dire. There is joy to be found in learning and training to be better at a game. Playing the game of creating better health through anti-inflammatory practices can actually be fun, and the benefits are palpable. Re-defining the experience so that I could see things in a more enjoyable light helped me access my inner strength and discipline in a way that for so long, seemed so difficult. Playing the game of overcoming inflammation was vastly better than fighting the very same fight.

The basics are the same as in any other game:

- Learn the rules; what things can and cannot be done.
- Collect/organize info about your opponent; see how to avoid being outmaneuvered.
- Assess what needs to be worked on most; develop a routine and set of practices that addresses these things.

- Set achievable goals, keep records, and track progress.
- Reward and celebrate wins and keep sight of the big picture; don’t allow losses to overcome the mind.
- Make it more fun and even a little competitive with friends and family joining or cheering on.

Talking to others, it seemed many other people were suffering with similar things that I had dealt with. I learned, in fact, an estimated 35% of US adults suffer from systemic inflammation. That means they ache everywhere, all the time (Pease, 2024). That means that one out of three people you interact with every day is in pain, often to the point of not being able to do regular chores, having to rely on others, turning down social invites and missing opportunities.

Systemic or chronic inflammation means that you could struggle with some or all of the following:

- Unrelenting fatigue.
- Strange aches that come and go.
- Weight gain, possibly resulting from moving less (because you’re in pain).
- Sleeplessness and discomfort at night. Of course, the pain “goes away” when you do manage to sleep, because you’re unconscious, but it still means you sleep poorly, jolted awake at times by the pain.
- A feeling of weakness in your muscles.
- Unexplained rashes.
- Occasional chills or even fevers, for no clear reason.
- A weak immune system, and frequent sickness and infections.

- Pain and swelling in various joints and muscles.
- Occasional disorientation and feeling unbalanced, like you might fall over.
- Anxiety, maybe even depression, that comes from living with ongoing pain.

What is clear is that, in general, inflammation is not focused on nearly often enough in the conversation about overall health. Our modern lifestyles, with pollutants all around us and unhealthy food sources being the norm, means that we are all at risk. Even if we don't realize the location and amount of inflammation in our bodies, we are subject to its negative effects.

Systemic, chronic inflammation can build silently over many years before it manifests via physical symptoms. We can get so busy pushing through life that we ignore our aches and pains until they grow bigger and become chronic. Sometimes the first time we really pay attention is when we suddenly end up with more serious health issues. This inattention can result in auto-immune disorders, arthritis, diabetes, and more. Left unchecked, chronic inflammation can and does affect nearly every system and part of the body. This is not a game we can simply choose not to play. Not with so many factors stacked against us; environmental pollutants, ongoing stress, chemicals and allergens in our food, water, and air, and busy work days stuck at our desks, sidelining our self-care: we are all at risk. We are all in the game.

So.

We can master the game, so as not to become its unwitting victim. We can face our opponent (inflammation) and decide that we are capable of winning. We can talk with people around us, allies who will be supportive of our success. We can tap into our resources and gather our forces, focusing on the first step and starting to practice and train. Enjoying

the first small successes, we can decide to go for the next win. Take the step in front of you without worrying about the one after that. Each positive action we take will make a difference in our lives. Just deciding to play is the very first win.

Of course, we will each approach this game a little differently. You will have your own scenario and context, your own history and specific strengths, skills, abilities, and preferences. Some practices will inspire you and some will not. You will discover what comes easily and what may require more effort.

The purpose of this book, then, is to guide you towards learning what *your* best moves are, and to find ways to incorporate those moves into your life. Like a coach, the knowledge in this book can help teach you new strategies and hopefully rally your spirit, but ultimately you play the game in the way that works for you, in the way that brings you relief, renewed hope, better health and ultimately improved quality of life.

So, let’s begin.

Chapter 1: Understanding the Inflammation Game

> *Know thyself, know thy enemy. A thousand battles, a thousand victories.*
>
> —Sun Tzu

***Note:** As you learn more about inflammation, please feel free to use the anti-inflammation scorecard at the back of the book. As you progress through this book, more and more of the items tracked by the scorecard will become practices that you can take on and integrate into your health journey.*

Inflammation itself is not your enemy. It is when it goes unchecked and unmanaged that it can transmute into a mortal foe.

When you get that splinter in your finger, or you damage a muscle or joint, pain is your body's way of saying "help!". The problem is that many of us do not listen, we are busy, we have so many commitments and responsibilities outside of our body's minor ailments or discomforts.

I can bet you can easily admit to ignoring the occasional ache or pain. After all, our parents, teachers, friends, and bosses don't want to hear us complain, and we don't want to come across as a hypochondriac. Not to mention, if you are a parent, you often don't get time or space to worry about your own needs so much, as your family's needs just always come first. But, is it not important for the parent to be healthy and strong in both body and spirit, first, so that they can then care for others?

We are encouraged by social norms to “brush off” pain and “power through”. Over time, without making a concerted effort we can easily become a victim of this busy, go-go-go lifestyle that doesn’t have any space for stopping, or slowing down for self-care.

In the end, we pay the price.

Imagine, for example, if you get that splinter in your finger. You suck on it but it’s not coming out. You’re too busy to bother with it and so you decide you will tend to it later. Later that finger is all red and swollen, but you still don’t have time to sit down and pay attention to it. By the next day it looks even worse and you are in agony as you try to dig the splinter out.

Instead of spending a few minutes in the beginning, you now end up really suffering.

Does this sound familiar? What physical symptoms have you recently ignored, only to find you pay a heavier price down the line?

The lesson is that we need to listen to our body’s red flags when we notice them.

Why Does Inflammation Happen?

Inflammation is the body's immediate response to harmful stimuli, aiming to remove the injurious agents and initiate the healing process.

Inflammation serves an essential role, a critical component of the body's immune response, but like many biological processes, it can become problematic when it goes awry. To understand inflammation, we need to delve into why it happens, what purpose it serves, and what occurs when this process becomes chronic and uncontrolled.

The primary purpose of inflammation is to eliminate the initial cause of cell injury, clear out necrotic (dead) cells and tissues damaged from the original insult and establish a repair process. In simple terms, inflammation serves the following functions:

- **Isolation of the Affected Area:** Inflammation creates a barrier around the affected area to prevent the spread of infection or toxins.
- **Immune Response Activation:** It signals the immune system to respond to the threat, sending white blood cells to the site of injury or infection.
- **Removal of Damaged Cells:** Inflammation helps remove dead and damaged cells from the site.
- **Initiation of Tissue Repair:** It begins the healing process by promoting the regeneration of new tissue.

Imagine you're at home, enjoying a quiet evening, when suddenly you hear a window shatter. Your immediate response is to investigate, secure the area, and call for help. In a way, your body reacts similarly when it senses trouble.

Let's say you've just gotten a nasty paper cut. That tiny tear in your skin is enough to set off an alarm in your body. Here's a play-by-play of what happens next, scientifically speaking.

The Immediate Alarm: Spotting the Intruder

The moment you get that paper cut, your body's local cells in the injured area start releasing chemical signals. Think of these chemicals—histamines, cytokines, and prostaglandins—as urgent messages being sent out to alert the neighborhood (your body) about the break-in (the injury).

The First Responders: The SWAT Team Arrives

Those chemical signals are like a 911 call that brings in the first responders: white blood cells, primarily neutrophils. These cells are the SWAT team of your immune system. They rush to the scene to fend off any bacteria that might have snuck in through the injury. You might notice redness and warmth around the cut—that’s the increased blood flow bringing more troops to the battlefront.

The Barricade: Containing the Chaos

Next, your body starts forming a barricade to contain the situation. Plasma proteins leak out of the blood vessels into the tissue, causing swelling. This fluid build-up, while a bit uncomfortable, is actually the body’s way of creating a protective barrier around the injured area. It’s like setting up a perimeter to ensure that any invading bacteria don’t spread further into your body.

The Cleanup Crew: Mop-Up Operations

As the battle rages on, some white blood cells—macrophages—act like the cleanup crew. They gobble up the dead cells and any remaining bacteria. This cleanup process is crucial for preventing infection and starting the healing process. Imagine them as the street sweepers that come in after a parade, tidying everything up so normal life can resume.

The Healing Process: Reconstruction Begins

Finally, once the intruders are dealt with and the area is secure, your body can start the healing process. Cells called fibroblasts come in to repair the damage, laying down new tissue.

If the cause of the inflammation is removed, then with time, the redness and swelling subside, and you're left with a scar that reminds you of the incident.

A stock standard inflammatory reaction is triggered by a variety of factors including:

- **Damaged Cells:** When cells are damaged due to physical injury or toxic chemical exposure, they release signals that trigger an inflammatory response.
- **Pathogens:** Pathogens (something that causes disease), bacteria, viruses, parasites or natural poisons (fungus, venom) are common triggers. The body detects these foreign invaders and mounts an inflammatory response to combat them.
- **Toxic Compounds:** Environmental toxins, such as pollutants and chemicals can damage cells and tissues, prompting inflammation.
- **Irradiation:** Exposure to radiation can cause cellular damage and subsequent inflammation.
- **Foreign Objects:** Splinters, dirt, or other foreign objects in the skin can provoke an inflammatory response.
- **Environmental Chemicals:** Certain chemicals in the environment can irritate tissues and lead to inflammation.

(Inflammation, Cleveland Clinic, 2021)

Short-term, Acute Inflammation

Acute inflammation is the body's immediate response to an injury or infection. It is short-term and usually resolves within a few days or weeks. The key characteristics of acute inflammation include:

- **Pain:** Chemicals released during inflammation stimulate nerve endings, causing pain.
- **Redness:** Increased blood flow to the affected area causes redness.
- **Swelling:** Accumulation of fluid in the tissues leads to swelling.
- **Loss of Function:** Swelling and pain can lead to temporary loss of function in the affected area.
- **Fever:** The body may increase its temperature to create an environment less favorable to pathogens.
- **Feeling Ill:** Systemic inflammation can cause a general feeling of malaise and exhaustion.

These symptoms occur as inflammatory cells travel to the site of injury or infection. This influx of cells and subsequent activities help to isolate and remove the harmful stimuli and begin the healing process.

So far, so good. We actually want some inflammation, if we want to survive. People who cannot feel pain (or ignore it) cannot protect themselves properly. The problem is also that some pain and inflammation is, at first, low-grade or not so noticeable.

For example, we eat a new cereal for breakfast, and we do not realize or consider that it has loads of sugar and some rather unpleasant preservatives and additives in it. When it

hits our digestive system it causes internal inflammation but we don’t really notice. Maybe we have some discomfort in our belly, but our bodies fight the battle for us and soon the discomfort goes away, and we forget about it. We may eat the same cereal the next day and go through this experience again without much thought.

Perhaps this is just one poor food choice amongst many and we are constantly bombarding our digestive system with loads of chemicals, causing a perpetual storm inside ourselves. Maybe we follow up our bad food choices with a few alcoholic beverages or some late night sweets. Each time, our internal systems activate and fight off the toxins. When we do this again and again over days and months, eventually our gut is constantly inflamed, bloated and in danger of serious illness.

If we don’t realize how serious these toxins are and can’t physically see how our bodies are reacting inside, it’s easy to dismiss random pains and discomforts as “just how things are”. But it’s when we ignore the problem, fail to identify and remove the cause, letting it go unchecked, that the situation can escalate.

When Inflammation Becomes Chronic

While acute inflammation is beneficial and necessary for short-term healing, chronic inflammation can be a deadly killer. Chronic inflammation occurs when the inflammatory response persists over a longer period, leading to ongoing tissue damage and health problems. Inflammation lasting over six weeks is considered chronic, but it can persist for months or years.

Causes of Chronic Inflammation

- **Long-term Exposure to Irritants:** Continuous exposure to harmful substances, such as tobacco smoke, alcohol, or environmental pollutants can cause chronic inflammation.
- **Unhealthy Lifestyle:** Poor diet, lack of exercise, and chronic stress can contribute to persistent inflammation.
- **Autoimmune Disorders:** Conditions like rheumatoid arthritis and lupus cause the immune system to attack healthy tissues, leading to chronic inflammation.
- **Obesity:** Excess fat (adipose tissue) can produce inflammatory chemicals, leading to chronic inflammation.
- **Persistent Infections:** Some infections are difficult to eradicate and can lead to ongoing inflammation.

(*Inflammation,* Cleveland Clinic, 2021)

Recognizing Symptoms of Chronic Inflammation

Chronic inflammation often manifests in subtle and diverse ways. Symptoms can vary widely depending on which tissues and organs are affected. And, as we mentioned before, some symptoms are not that noticeable until we are well on our way to disease.

Some common red flags include:

- **Persistent Pain:** Ongoing pain in joints, muscles, or other areas.

- **Fatigue:** Chronic tiredness and lack of energy.
- **Digestive Issues:** Symptoms like bloating, diarrhea, or constipation.
- **Skin Problems:** Conditions such as rashes, eczema, or psoriasis.
- **Weight Gain or Loss:** Unexplained changes in weight.
- **Mood Changes:** Depression, anxiety, or other mood disorders.

(*Inflammation,* Cleveland Clinic, 2021)

The Impact of Chronic Inflammation

Chronic inflammation can affect any cell in the body, rendering it unhealthy or ineffective. This means that cells cannot perform their core functions properly, whether they are neurons (brain cells), gut cells (involved in nutrient absorption), or lymphatic cells (part of the immune system). Our body cells are what we are made of, so if they are unhealthy, so are we.

The prevalence of inflammation-related conditions is staggering. More than 50% of all deaths worldwide are attributed to chronic inflammatory diseases (Furman et al., 2019) and many chronic diseases manifest as sustained low-grade inflammation.

Chronic inflammation is linked to a wide range of serious health conditions.

The more serious consequences of chronic inflammation are not for the faint-hearted. It really brings home why we need to pay attention to our bodies and learn techniques of combating inflammation before serious illness starts. Some potential consequences include:

- **Cancer:** Chronic inflammation is associated with stages of tumorigenesis, which is a risk factor for certain types of cancers.
- **Cardiovascular Disease:** Chronic inflammation is a key factor in the development of atherosclerosis, which can lead to heart attacks and strokes.
- **Neurodegenerative Disease:** Inflammatory processes are involved in the development of Alzheimer's disease and other forms of dementia.
- **Stroke:** Inflammation can contribute to the formation of blood clots, increasing the risk of stroke.
- **Diabetes:** Chronic inflammation is associated with insulin resistance, a precursor to type 2 diabetes.
- **Arthritis:** While it can cause further inflammation, at the root of this debilitating and incurable disease sits unmanaged initial inflammation.

(*Inflammation,* Cleveland Clinic, 2021)

Weight, Inflammation, and Pain

According to 2017–2018 data from the National Health and Nutrition Examination Survey nearly 1 out of 3 adults (30.7%) are overweight. More than 1 out of 3 men (34.1%) and more than 1 out of 4 women (27.5%) are overweight. More than 2 out of 5 adults (42.4%) have obesity (including severe obesity). About 1 out of 11 adults (9.2%) have severe obesity (Bryan, 2021).

Excess weight, particularly obesity, significantly impacts overall health and is a major risk factor for numerous chronic conditions. Carrying excess weight can strain the body's systems, leading to a range of health issues, including cardiovascular diseases, diabetes, and certain cancers. Additionally, obesity is closely linked to increased

inflammation and pain, creating a cycle that can be challenging to break.

Excess adipose tissue, especially visceral fat around the abdomen, acts as an active endocrine organ, releasing various inflammatory cytokines, and adipokines. These substances contribute to a state of chronic low-grade inflammation throughout the body. This persistent inflammatory state can further exacerbate insulin resistance, promote the progression of atherosclerosis, and impair immune function.

The discovery that obesity and metabolic disorders are associated with chronic low-grade inflammation has significantly altered our understanding of the causes and progression of these conditions. It is now understood that an inflammatory response is triggered early in the process of fat tissue expansion and persists during chronic obesity, continuously pushing the immune system towards a proinflammatory state, and we are beginning to understand the mutual influence between obesity and inflammation (Kuryłowicz & Koźniewski, 2020).

Weight, inflammation, and pain are interconnected in a complex and often self-perpetuating cycle:

- **Weight Gain and Inflammation:** As weight increases, the body produces more inflammatory markers, which can lead to chronic inflammation.
- **Inflammation and Pain:** Chronic inflammation sensitizes nerves and damages tissues, resulting in pain.
- **Pain and Reduced Activity:** Pain can limit physical activity, leading to a sedentary lifestyle, which further promotes weight gain and inflammation.

- **Weight Gain and Further Inflammation:** The cycle continues as additional weight gain exacerbates inflammation and pain.

The theory of chronic, low-grade inflammation, known as metaflammation, helps explain the link between obesity and type 2 diabetes (T2D).

This concept is based on the observation that obese individuals, unlike those with normal body weight, consistently have elevated levels of inflammatory markers in their blood, such as C-reactive protein (CRP), tumor necrosis factor α (TNFα), and interleukin 6, also known as IL-6 (Saltiel & Olefsky, 2017).

Chronic Inflammation and Autoimmune Diseases

In some cases, the body's immune system mistakenly perceives its own cells or tissues as harmful, leading to autoimmune diseases. These conditions involve chronic inflammation as the immune system continually attacks healthy tissues. Examples include:

- **Type 1 Diabetes:** The immune system attacks insulin-producing cells in the pancreas.
- **Inflammatory Bowel Disease:** Conditions like Crohn's disease and ulcerative colitis involve chronic inflammation of the digestive tract.

Modern Lifestyles and Inflammatory Agents

It’s a sad fact that our modern lifestyles often include many factors that can trigger or exacerbate inflammation. It is not

easy to always make healthy choices.

Some people are able to stay mostly on track, but in most cases not without deliberate effort. Some of us try to do our best, hoping that any amount of effort will at least help.

It’s easy to love the conveniences of modern life—grabbing a bite of fast food or living on pizza and burgers, binge-watching shows, scrolling social media late into the night. While these habits make life more entertaining with less effort, they can also sneakily set us up to lose. Our everyday choices can turn into health hurdles without us even realizing it.

Fast food, processed snacks, and sugary drinks are everywhere, and they’re incredibly tempting when we’re busy or just craving something quick. But constantly putting unhealthy fats, refined sugars, and empty calories in our bodies, we are setting ourselves up for problems. Our body systems function pretty much the same way they have been for thousands of years, and modern food technology with preservatives, enhanced flavorings and added color are simply not understood by our cells and body systems. Our bodies see them as foreign chemicals and treat them with alarm.

Regularly indulging in this lifestyle is like filling your car with bad gas—not only does it run poorly, but it will break down if you don’t get some proper fuel in it.

Today’s typical lifestyle, with remote work becoming the norm and entertainment options right at our fingertips, is easy to spend hours on end being sedentary. Lack of physical activity can cause a range of issues from spinal pain to cardiovascular problems. This is because our bodies are built and designed to move!

Finally, let’s not underestimate the effects of stress—unmanaged stress from life’s struggles, work, social

pressures, the fast pace of society, and the onslaught of negative stimuli from social media—how it all combines to keep our bodies in a constant state of alert, leading to chronic inflammation.

Some of the most common and detrimental lifestyle contributors include:

- **Smoking:** Tobacco smoke contains innumerous chemicals that can irritate and inflame tissues.
- **Alcohol Consumption:** Excessive alcohol consumption damages tissues and promotes inflammation.
- **Refined Sugars and Carbohydrates:** Diets high in refined sugars and carbs can lead to metabolic disturbances.
- **Food Additives:** Certain food additives and preservatives can trigger inflammatory responses.
- **Unhealthy/Trans Fats:** Consuming unhealthy fats promotes inflammation.
- **Unmanaged Stress:** Chronic stress can activate inflammatory pathways in the body.

(*Inflammation,* Cleveland Clinic, 2021)

This may all sound like a lot to process, and you may wonder how you are supposed to eliminate things that sometimes seem impossible to avoid or have become such a part of your lifestyle? The good news is that your body does not need you to become a paragon of virtue, it just needs a bit of a break from the regular routine. Maybe you can reduce some of the irritants above and give it that first real needed break. There are loads of ways you can make better choices, moment by moment. The first step, however, is just to create awareness about your opponent’s hidden arsenal of weapons that you will encounter in this game.

Can Chronic Inflammation Be Reversed?

The potential to reverse chronic inflammation depends on various factors, including the underlying cause, the extent of the damage, and the body's individual ability to heal. In many cases, lifestyle changes and medical treatments can help reduce inflammation and its associated symptoms. Key strategies include:

- **Hydration and Dietary Changes:** Staying well hydrated and adopting an anti-inflammatory diet rich in fruits, vegetables, whole grains, healthy fats, and lean proteins can help reduce inflammation.
- **Regular Exercise:** Regular physical activity and increased circulation helps regulate inflammatory responses and promotes overall health.
- **Sleep and Stress Management:** Techniques like mindfulness, meditation and yoga can help reduce the inflammatory impacts of stress on the body. Getting adequate sleep is an essential part of the process of reducing inflammation
- **Avoiding Inflammatory Agents:** Reducing exposure to tobacco smoke, alcohol, and environmental pollutants is crucial.
- **Treatments and Biohacking:** Naturally anti-inflammatory biohacks and treatments can be incorporated and technological advances can be utilized to fight inflammation.
- **Natural Supplements & Medical Treatments:** In some cases, inflammation can be managed with natural medicines and in other instances medications or other medical interventions may be necessary to manage chronic inflammation.

Inflammation is a double-edged sword. It is an essential defense mechanism but also can lead to a host of serious health problems. Understanding the science behind inflammation and recognizing the factors that contribute to its persistence, is knowing the rules of the inflammation game. Manipulating the basic rules and applying them when considering our daily choices is how we make strategic moves that turn the game, and the health of our bodies, towards our favor. Each action earns a point, and points win the game.

Now that you understand a bit more about the basics of inflammation, let’s move on to a lesser-known element of what can make us ill or healthier, depending on its state: our mind.

Chapter 2: Mindset

If you can build a muscle, you can build a mindset.

—Jay Shetty

The link between mind and body is gaining more traction these days. Only in the last few decades has the medical profession begun to understand how powerful our minds can be when it comes to our overall health.

Our mind and mindset is a part of our biology, and so intrinsically linked that we can't easily separate them out from our physical body. All we know is that our brains (minds) affect our bodies and vice versa. So, if we want to treat and heal one, we almost always must treat the other as well.

Setting Up the Game Board

A crazy 75%–90% of human diseases are related to the activation of the stress system (Liu et al., 2017). This staggering statistic underscores the importance of managing stress and adopting a positive, proactive mindset in the battle against inflammation.

Our ability to manage stress by improving and practicing a healthy mindset is a crucial player in overcoming inflammation and achieving overall well-being.

Consider that your mind—together with your body—is the team on the playing field. The mind is like the coach, and the body is the team. Both mind and body together decide

how the game will unfold. Our mind sets the stage for how we approach the challenge of fighting inflammation, preparing us to face the opponent rather than dreading it, and our body practices the plays and learns muscle memory and gains strength and endurance to help overcome the specific challenges being faced.

Taking on the Challenge

Embarking on the journey to reduce inflammation requires a mindset shift. Maybe there's been a nagging feeling in the back of your mind that you "should" or "need to" do something about your health. It's something that you think of often, but you've been avoiding it, and it is making you feel even worse each day you witness yourself "failing", through inaction. There must be an initial mental spark or inspiration that suddenly convinces you to do the thing that you have felt up until now, you are for some reason incapable of.

We think of motivation as that first push or the first step. Not having motivation can feel like being stuck in quicksand when it comes to our health. But here's a secret: motivation doesn't just drop in our laps out of the sky. Motivation is discovered by utilizing things such as deep inner desire, self-love, or maybe even inspiration from an outside source. Think about an athlete's deepest reasons for playing their sport, for practicing over and over, despite good days or bad ones. Maybe they play to honor a family member, maybe they play to honor their people or nation or ancestors. The initiator of motivation is often strongest if it is sourced outside of ourselves, by a greater purpose. If you can find your reason to motivate, then the actual motivation is just a moment in time that surges you forward into a place of action. Find the thing that has meaning, your purpose for

being healthy. Whatever you discover is your reason why, keep it close and available for when you need it again. Tell somebody about your intention, for accountability, or maybe keep your decision to make change in your life like a precious secret until you are experiencing some results, if that is more comfortable for you.

The game player, in order to become adept at the game, must access the mental tools necessary to get them out on the field each day. Only practice will bring about skill and strength and successful wins. The player loves the team and the game and seeks the reward of winning, that only comes from facing an opponent and overcoming the challenges posed by that opponent. The player does not dread the game but views it as a process that enhances the experience of life, with every loss and every win. Embrace the process of discovery and growth, and understand that each step forward, no matter how small, is a victory. Your health journey is simply the daily practice of not giving up on yourself.

Identify Your Inflammatory Pain

Inflammation shows up differently for all of us. Just paying more attention to what hurts more, and when, will help you begin to strategize ways to effectively manage it. Pain can manifest in various parts of the body, each indicating different underlying issues. By paying attention to where your pain is located and how it presents itself, you can gain valuable insights into its possible causes and triggers. Identify what parts of your body need the most attention first.

Simple Body Scan Exercise for Identifying Pain

Find a quiet and comfortable space to sit or lie down. Close your eyes and take a few deep breaths to center yourself. Start by bringing your awareness to your breath, noticing the rise and fall of your chest with each inhale and exhale. Then, slowly scan your body from head to toe, paying attention to any areas of tension, discomfort, or pain. Take note of any sensations you observe without judgment or the need to change them. Allow yourself to fully experience the present moment and the sensations in your body. After completing the scan, take a few more deep breaths before opening your eyes. This exercise can help you connect with your body, identify areas of pain or discomfort, and cultivate a greater sense of self-awareness.

Your pain may also involve contributing factors such as lifestyle habits, previous injuries, repetitive movements, or underlying health conditions. Keeping a pain journal can be a helpful tool in this process, allowing you to track when and where pain occurs, what activities or movements exacerbate it, and any other relevant factors. Perhaps create a pain chart to help identify what is going on with your pain levels.

Each entry includes the date and time of the pain occurrence, the location of the pain (e.g., lower back, knee, headache), a brief description of the pain (e.g., dull ache, sharp pain), any triggers that may have contributed to the pain (e.g., activities, stress), and the severity of the pain on a scale from 1–10 (with 1 being mild and 10 being severe). Keeping track of this information over time can help you identify patterns, understand potential triggers, and

communicate effectively with healthcare providers about your pain experiences.

Facing Your Fears

Fear is one of the most powerful driving and limiting forces. Behind many of our less helpful behaviors and choices, if we take a long, hard look, we will find fear lurking. Often our fears control us because we are so scared we simply don’t look at them, but we need to find the courage to do this if we are to move forward. By unpacking any fears you have around making changes, you open your mind and your life to new possibilities.

So, how do you master your fears, rather than have them rule over you? You must choose to challenge your fears.

The first step is just to identify the fears that are holding you back from making daily progress. Write them down in a list. Try to pinpoint if your fears have specific origins. And are they just within yourself or do they involve others? Then, question the validity of these fears. Are they based on facts or assumptions? How likely are they to come true? Rate your fears in order of difficulty. Rate your desire to conquer this fear. Challenge yourself to score high despite the level of difficulty that you are facing. Try to come to understand them as we would an opponent. A boxer steps into the ring to face their match, no matter the perceived strength of the opponent. They know they’re going to get punched in the face and they know it will hurt, but if they fight back the pain will be less, and the glory will reign long after the pain of the match subsides. To walk away from the ring is just not an option. Of course, making healthy decisions and choosing to act upon them is not exactly like getting punched in the head repeatedly, but it can be just as

difficult to confront. Be kind to yourself, but do not be kind to your opponent as you go through each veritable round.

When considering lifestyle changes to reduce inflammation, fear and uncertainty can often hold us back. A useful exercise to navigate these concerns is fear-setting, a method inspired by Tim Ferriss. Start by identifying your worst-case scenarios—perhaps struggling to maintain new habits, feeling socially isolated due to dietary changes, or facing financial strain from purchasing healthier foods. Next, think about how you could prevent these fears from becoming reality: implementing small, gradual changes, seeking support from friends and family, setting realistic expectations, and planning a budget for healthier choices. If setbacks occur, have a strategy for repair—such as reassessing your approach, finding a supportive community, practicing stress management techniques, or adjusting your budget accordingly. Beyond the fears, consider the potential benefits: reduced chronic pain, increased energy, improved mental clarity, and a lower risk of disease. Then, take a hard look at the cost of inaction. Imagine where your health might be in six months, a year, or three years if you don’t make these changes—continued discomfort, increased risk of illness, and possible regret. By breaking down your fears, weighing the positives, and acknowledging the risks of staying the same, you empower yourself to make informed, confident decisions towards a healthier, more vibrant life.

By going through this exercise, you can gain clarity on your fears, understand how to manage them and weigh the benefits/costs of making/not making lifestyle changes to reduce inflammation. This structured approach helps in making more informed and confident decisions towards a healthier lifestyle.

How To Create New Habits that Stick

A large part of the reason we tend to think negatively about lifestyle changes, or any change for that matter, is that we don’t have faith in ourselves. The reason for this is simple. We have likely tried to do things like this before and it hasn’t “stuck”.

We might have decided that getting rid of old habits or creating new ones is an impossible task. But that’s just because we don’t understand how our brains work.

The neuroscience of habit-setting, broken down in layman’s terms, is easy to apply once you know it:

- Habits take time to adopt or change.
- Identify what triggers your bad habits. Our habits have triggers that initiate a decisive moment, in which we choose our response to our temptations. Learning our triggers helps us avoid being blindsided by habitual urges. Prepare counter moves to combat that initial moment of perceived weakness and gain control over your habits.
- You can’t just stop a bad habit. You need to replace it with something else. Devise healthy alternatives for your worst habits and slowly incorporate them into the game. If you’re trying to quit smoking, using flavored toothpicks or chewing on sunflower seeds, or cracking pistachios are known to help because these things all have physical components that help replace the hand motion and oral sensations associated with the smoking habit. Also, reward yourself with bodywork or outings or naps when you make good choices or make sacrifices that benefit your health. The good choices and the good feelings get associated with each other, helping to subconsciously form good habits.
- Utilize physical reward, it is very powerful. Some things become habituated quickly because the

physical reward is so great. Smoking tobacco can so quickly become habitual because the chemicals have a very physical effect. But healthy physical activity also creates chemical stimulation in the body and can unexpectedly become a habit. Start taking walks or swims, hang from a pullup bar in a doorway and stretch and relax the body, do a single sit-up today and increase by one sit-up each day, and see that you start to experience physical reward from completing these small tasks.

- Seek to be consistent, on average. That means if you mess up once or twice along the way, know you have not lost the entire challenge. Don’t dwell in guilt about a missed day or bad decision, but allow it to happen when it does, then simply decide to start strong the next day. Take a rest day for your body and mind, charge your mental and physical self and then bounce right back. Maybe schedule rest days that you can look forward to. The only way to lose average consistency is by giving up.
- It takes as long as it takes. You will know something is habituated when it feels easy to do and you do it automatically.
- Good new habits are easier to follow through earlier in the day, when your decision-making and willpower is stronger. The earlier the better, start the day off right and feel good about it all day long.
- Only attempt to habituate one thing at a time. Don’t try to master everything at once, prioritize your health goals.
- Bundle your new habit with an existing routine. For example, if you want to drink more water, consider drinking a glass before your morning cup of coffee, or after each time you use the restroom. Using

established habits to form new ones can make the new habits easier to remember.

- Make it visual. Stick up your habit goals on a list or vision board in a place that you will see daily. Fill in calendars or charts that visually represent your journey and successes.
- Take small, manageable steps. Start with changes that feel achievable. If you decide you want to start meditating then choose a length of time to meditate that feels extremely, maybe even too easy. Just do that, until you feel you can add more time. Don’t be tempted to change the world in one day, your small successes will lead to greater mental strength and bigger successes.

Mindfulness for Stress Reduction

Mindfulness is a powerful tool for managing inflammation, as it helps to reduce stress, improve emotional regulation, and foster a sense of presence that can enhance overall well-being. Eckhart Tolle, in his book *Practicing the Power of Now*, emphasizes the importance of living in the present moment and becoming more aware of our thoughts and actions. This practice can be particularly beneficial for those dealing with inflammation, as it helps break the cycle of chronic stress that often exacerbates inflammatory responses.

One key aspect of Tolle's teaching is to become an observer of your thoughts rather than getting entangled in them. By simply noticing your thoughts without judgment, you can create a mental space that reduces stress and its physical impacts. This shift in perspective can lower stress hormones like cortisol, which are known to increase inflammation in the body.

Tolle also discusses the importance of acceptance, which can be transformative in managing chronic conditions. Acceptance doesn't mean resignation but rather recognizing your current state without resistance or judgement. This attitude can help reduce the emotional burden that often accompanies chronic inflammation. By accepting your situation, you create a more peaceful inner environment, which can positively influence your physical health. Acceptance can foster a state of calm that is conducive to healing.

To integrate mindfulness into your daily routine, consider a simple exercise inspired by Tolle's teachings. Start by finding a quiet place where you can sit comfortably. Close your eyes and take a few deep breaths. Focus on your breath as it enters and leaves your body. Whenever your mind wanders, gently bring your attention back to your breath. This practice of focusing on just the breath in the present moment can help reduce the stress and anxiety that contributes to inflammation. Try this for five to ten minutes each day to start experiencing the benefits.

Other ways you can be more mindful include:

- A daily meditation practice like the one just mentioned to help you calm your mind and body. There are so many wonderful ones already available to try out.
- Use your senses to help ground you in the moment. Notice what you can see, hear, taste, touch, smell and feel. Try to really sense your experience of being alive.
- Notice when you are reliving the past or allowing your mind to skip to the future. These are useful to do for a short time, to take a lesson from the past or to plan for the future, but if you let your mind stay there you are not fully in the present. Being

fully in the present is living your life as it unfolds second by second, bearing witness to that unfolding.

- Have a personal mantra or song you use to calm yourself in the moment. For example, “Right now I am alive and okay,” helps relieve most mundane worries by putting things into perspective.
- Get into nature. A walk somewhere green, or a swim are mentally calming and healing. If you can’t do that, a warm bath or cold shower also connects us with nature in the form of the water element. House plants can bring nature indoors, and tending plants also connect us with nature. Pick off dead leaves or mist the plant to encourage it to be happier.

Incorporating mindfulness into your lifestyle doesn't require drastic changes but rather small purposeful moments. By practicing it, you can create a buffer against the stressors that trigger inflammation. Remember Tolle's advice: "Realize deeply that the present moment is all you ever have."

By focusing on the now and becoming more mindful, you can make better decisions, manage your inflammation more effectively and improve your overall quality of life.

Embracing Failure and Discovering Capabilities

You only fail if you do nothing about your present situation. Any positive action you can take will be a step in a better direction. Stop worrying about failure and decide to discover what you are capable of without predetermining your level of success.

Here’s how to reframe your mindset:

- **Reframe Failure as Opportunities for Learning:** View failures as lessons. Each setback is a chance to adjust your approach and try things differently. A team that loses its first game of the season but spends time studying the plays of the other team will likely do better the next time against that opponent.
- **Celebrate Effort, Not Just Results:** Acknowledge the effort you put into making changes, regardless of the outcome, and consider it a win. Take pride in the effort you put forward. Consider a marathon runner who is not concerned with being the first to cross the finish line, but rather, to cross the line at all, in their own time. Even to be the last to cross the finish is to complete a marathon and is worth celebrating.
- **Set Flexible Goals:** Allow yourself to adjust your goals as needed. Flexibility can reduce the pressure to succeed and keep you motivated. This is your life, if you need to move the dartboard a little closer, do it. Set initial goals and long-term goals separately.
- **Practice Self-Compassion:** Recognize that you are human, and that being human means being flawed, and it’s okay to feel like you’re losing the fight sometimes, and it’s okay to ask for help.

The Impact of Long-Term Stress on Inflammation

When we have sat with persistent stress for a long time it hardwires itself into our brains and bodies. Chronic stress initiates a cascade of physiological responses in the body, including the release of stress hormones like cortisol and adrenaline. While these hormones are essential for short-

term survival, prolonged exposure to them can have detrimental effects.

At a cellular level, stress hormones activate the immune system, leading to the production of pro-inflammatory cytokines. These cytokines play a crucial role in the body's response to injury and infection, but when produced in excess due to chronic stress, they can contribute to systemic inflammation. This chronic low-grade inflammation has been linked to a wide range of health problems, including cardiovascular disease, diabetes, autoimmune disorders, and chronic pain conditions.

Moreover, chronic stress can disrupt the balance of the hypothalamic-pituitary-adrenal (HPA) axis, which regulates the body's stress response. Dysregulation of the HPA axis can lead to abnormalities in cortisol secretion, which further exacerbates inflammation. Additionally, chronic stress can impair the function of the vagus nerve, which plays a crucial role in regulating inflammation. When the vagus nerve is compromised, the body's ability to dampen inflammation is compromised, leading to a vicious cycle of stress and inflammation (Liu et al., 2017).

Mental health also plays a significant role in the relationship between stress and inflammation. Chronic stress is strongly associated with conditions like anxiety, depression, and post-traumatic stress disorder (PTSD), all of which have been linked to increased inflammation. Conversely, inflammation can also contribute to the development of mental health disorders, creating a bidirectional relationship between stress, inflammation, and mental well-being. Chronic stress disrupts the body's immune and hormonal systems. It’s critical to work on both mind and body if we are to make real changes to our health.

The Vagus Nerve: Connecting Stress and the Brain

The vagus nerve extends from the brainstem to various organs, including the heart, lungs, and digestive tract. It influences many bodily functions, such as heart rate, digestion, and immune response. When activated, the vagus nerve can signal the body to enter a state of relaxation and repair, counteracting the effects of stress (*Vagus Nerve,* Cleveland Clinic, 2022).

The vagus nerve is a critical link between stress and inflammation. It plays a central role in the parasympathetic nervous system, which helps regulate the body's response to stress and promotes relaxation. When the vagus nerve is stimulated, it can help reduce inflammation and improve overall health.

Exercises to Stimulate the Vagus Nerve

- **Deep Breathing:** Practice deep, slow breathing. Try inhaling deeply through your nose for a count of four, holding for a count of four, and exhaling slowly through your mouth for a count of six.
- **Singing or Humming:** Engaging in activities like singing, humming, or chanting can stimulate the vagus nerve simply through the vibrations in your vocal cords.
- **Yoga and Tai Chi:** These practices combine physical movement with breath control, promoting vagal stimulation.
- **Cold Exposure:** Brief exposure to cold, such as a cold shower or splashing cold water on your face, can stimulate the vagus nerve.
- **Meditation:** Regular meditation can enhance vagal tone and reduce stress.

Stress and Inflammation: The Mind-Body Link

Stress and inflammation are intimately connected. Managing stress effectively is crucial for reducing inflammation and promoting overall health.

There is no one-size-fits-all approach to reducing stress. This is one of those mindset changes, as well as something we need to include in our daily lifestyles, for it to be really effective.

Some things to try include:

- **Identifying Your Triggers & Stressors:** Recognize the sources of stress in your life. This could be work, relationships, financial concerns, or health issues.
- **Simplifying Life:** What can you let go of, give to someone else to do, choose not to do, or delay? Make a list and make time to simplify your life as soon as possible, especially if you are struggling with pain and inflammation. It doesn't need to be forever, just until life is back on track again. Small amounts of immediate relief can make a big improvement to quality of life.
- **Prioritizing Self-Care:** Make time for activities that bring you joy and relaxation. This could be reading, walking, gardening or spending time with loved ones. It could be finding much needed time alone, getting a professional massage, doing foot soaks or even taking the time to mend something that is broken that you have been meaning to fix. It can be focusing on an art project or home improvement project that's been put to the side for

too long because it’s not the “most important” thing on the to-do list.

- **Staying Connected:** Maintain social connections with friends and family. Talking to someone you trust can provide emotional support and reduce stress. Reach out to people to let them know how you care about them.
- **Setting Boundaries:** Learn to say no and set boundaries to protect your time and energy. It’s okay to prioritize your well-being over others’ demands.

Adopting the right mindset is crucial in the journey to reduce inflammation and improve overall health. By taking on the challenge, facing your fears, and embracing a calmer, simpler approach, you can better manage your stress and its impact on your body.

Remember, this is about becoming healthier, not about being perfect, and every positive change brings you closer to a healthier, more balanced life.

Chapter 3: Basic Foundations of Body Wellness

> *Wellness is the complete integration of body, mind, and spirit—the realization that everything we do, think, feel, and believe has an effect on our state of well-being.*
>
> —Greg Anderson

We live in a symptoms-focused world. When we get sick, our doctor will want us to list whatever is going wrong with us, and then most likely will prescribe some medication to relieve the problems as quickly as possible. There is nothing wrong with this. If we have medical science and technology, we should use it, right? But it can be a bit of a quick-fix approach at times, not necessarily addressing the root cause of our illness.

Even though there has been a growing awareness that our wellness is a holistic thing, and that mainstream medicines and interventions can be replaced to some degree with lifestyle changes and more natural treatments, we still seem to focus on the symptoms of an illness rather than its source. It’s just how we have been encouraged to think, and what seems like a solutions-based best option.

The problem is, if we only focus on the symptoms, we can often fail to understand the underlying cause of our ailments. It’s a bit like topping up the water in the reservoir

in your car radiator but not identifying and fixing the leak that is causing the coolant to drain out in the first place.

When struggling with inflammation, one learns a lot of hard lessons. Pain becomes, in some ways, a wise teacher. One of the most powerful lessons it taught me was to always go back to the source. We need to make sure our bases are covered.

Health basics are so often overlooked. We all know in theory that our bodies need to hydrate, that we need to eat healthily, exercise and so on. Most of us pay lip service or try to squeeze some of it into our daily routines. We think, “Next week I will start that new diet” or “this summer I’m going to get on an exercise plan.” But it all gets so easily lost in the noise and business of life. Down the line, when our mistreated bodies get sick of the abuse (quite literally) we pop some more meds and the vicious cycle continues, often with our wellness progressively leeching away.

The first thing is to start with the basics, then during each step along the way we must continue to cover them as we progress. When in doubt, check in on your foundational wellness needs. For example, right now, do you need to get up and drink some water?

Never underestimate the powerful impact of any of these foundational elements.

Assuming we have sufficient warmth and oxygen, and are basically safe, these are the next things on our survival list to keep our bodies alive.

The main physical building blocks are:

- **Proper Hydration:** Our bodies are made of around 60% liquid, so we need those replaced and topped up regularly to maintain the system.

- **Nutritious Food:** This provides all the minerals, salts, sugars, and building blocks needed on an energetic and cellular level to keep things running.
- **Enough Quality Sleep:** The quality and quantity of sleep and rest we manage to get. Our bodies being complex organic systems, rest is essential to repair, restore, and re-energize.
- **Adequate Movement:** It helps blood to circulate better, keeps our joints lubricated and flexible, strengthens bones and muscles, stimulates our lungs, and rewards our brains with feel-good chemicals.

Added to this, our mindset and mental health and even how much fresh air and sunshine we get are also factors in basic health management. For the purposes of making things simple, we are going to focus on the primary four factors—the main culprits that sit behind inflammation. The rest can come once we get our fundamental lifestyle factors right.

These are very simplistic overviews, and there is way more to it obviously, but every part of the body system affects every other part, so if one element is “out”, it has a negative effect on the rest too. It doesn’t help to know “in theory” about these things, we actually need to have a line of sight of exactly what our bodies need in each category, and how to render it in the best way. Then we can be sure we are providing the best possible foundation from which good health can spring.

To this end, let’s break down the most important need-to-knows for each of these four factors now.

Hydration

I’m going to go out on a limb and state that maintaining sufficient hydration is the simplest daily practice that one

can do to keep chronic inflammation at bay. It is no coincidence that the cover of this book shows a full glass of water—it is a reminder. Drink down another glass of what your body really needs, yet it is so easy to overlook. Starting the day with a nice big drink of water can prevent the body from struggling through a myriad of issues that trigger inflammation.

When it comes to inflammation, dehydration is a real troublemaker. Without enough water, your cells can't function properly, making it harder to flush out toxins and waste, which just amps up the inflammatory response. Plus, when you're dehydrated, your blood gets thicker and circulates less efficiently, so all those anti-inflammatory goodies don't get where they need to go. Your joints also suffer—less water means less lubrication, turning them into friction hotspots ripe for inflammation. And let's not forget your gut—dehydration slows down your digestion, leading to issues that can inflame your digestive tract.

Even your immune system takes a hit without adequate hydration. It struggles to produce and distribute anti-inflammatory agents, letting inflammation run wild. On top of all that, dehydration can spike stress hormones like cortisol, which adds fuel to the inflammatory fire. Staying hydrated helps keep everything running smoothly, detoxifying your system and keeping inflammation down.

The body’s hydration needs can vary based on several factors including age, sex, weight, activity, and climate, but some general guidelines can help ensure proper hydration.

General Hydration Guidelines

Staying well hydrated is one of the most crucial moves of your daily routine, so start each day with a whole glass of

water and keep a water bottle on hand throughout the day to increase your water intake.

Practice drinking down an entire glass in one go, starting small and increasing the number of ounces over time. I discovered that I was really not good at this, that I was a water sipper, not so adept at chugging down an entire glass at once. When I realized how this was affecting me, I made an effort to change the whole way I approached drinking water, it was really just a matter of mindset.

- Keep track of your water intake daily, so you become more aware of your state of hydration or dehydration. There are apps that you can download for tracking water intake, and to remind you, too throughout the day.
- Increase your water intake if you are physically active or in a hot climate, as you lose more water through sweat.
- For the ladies, be aware that if you're on your cycle or pregnant, you will need extra hydration.
- Thirst is a good indicator of dehydration, but don't rely on it entirely, especially in children and the elderly who may not feel thirst as strongly. Again, if you are feeling thirsty, you are already well on your way to being dehydrated, so do your best not to get to that point.
- Your urine color is a good indicator of hydration levels. Dark urine is not a good sign. Aim for light yellow urine as a sign of proper hydration.
- Your skin elasticity and quality can also be a good tell sign. The skin pinch test is especially useful with small children. Here's how to do it:
    - Select a site on your body where the skin is relatively thin and easy to pinch,

such as the back of your hand or forearm.
    - Gently pinch a small fold of skin between your thumb and forefinger.
    - Hold the skin fold for a few seconds and then release it.
    - If you are well-hydrated, the skin will snap back into place immediately after release, returning to its normal position without any lingering fold or tenting.
    - If you are dehydrated, the skin may return slowly or remain tented for a brief period before returning to its normal position. It may also appear to lack elasticity and feel dry or wrinkled.

In general, a good level of hydration would mean:

- **For Men:** About 125 ounces (3.7 liters) of total water per day.
- **For Women:** About 90 ounces (2.7 liters) of total water per day.
- **Children:** Varies by age and weight but generally ranges from 44 to 70 ounces (1.3 to 2.1 liters) of total water per day.

A common rule of thumb is to *drink half an ounce to one ounce of water per pound of body weight* (Syed, 2024).

Example:

- 180 pounds = 90–180 ounces of water per day.
- 150 pounds = 75–150 ounces of water per day.
- 50 pounds = 25–50 ounces of water per day.

Remember, these are general guidelines. If you feel thirsty, drink more than you think you need. And of course, you are not limited to just water. Any healthy liquids, such as: plain

sparkling water; tea infusions; herbal or fruit teas; smoothies; and the juices and liquids found in fruits and veggies are all good options.

Some other tasty ways to stay hydrated (for those who may not enjoy plain water):

- Add slices of fruits like lemon, lime, orange, strawberries, or cucumber to your water for a refreshing flavor boost.
- Add a splash of fruit juice to plain, sparkling water.
- Brew your favorite tea and chill it for a refreshing iced tea option. Green tea, in particular, is rich in antioxidants and can be served with a squeeze of lemon.
- Blend fruits like berries, bananas, and mangoes with yogurt or milk.
- Kombucha is a fermented tea beverage packed with probiotics that support gut health while providing hydration. It’s a bit of an acquired taste, but it has a ton of health benefits that make it worth trying out.

Drinks with added sugars and preservatives are not good hydration choices, so try to steer clear of those.

What You Eat Matters

We have a whole chapter on diet and recipes upcoming, but this deserves an extra mention. Our food sources are a major influencing factor when it comes to managing systemic inflammation. What we choose to ingest can either calm and soothe, help repair and heal, or it can inflame and irritate, adding fuel to the flames of pain. We just need to get clear on which is which. There are so many healthy diet options around, and there’s no “one-size-fits-all” approach.

Building a healthy diet is all about variety and balance.

- Think of your plate as a colorful palette filled with different fruits and veggies; the more colors, the better. Aim to make half your plate veggies or fruits at each meal.
- Mix in whole grains like brown rice and quinoa instead of refined grains. Choose whole grain bread and pasta over white.
- Don’t skimp on healthy fats! Avocados, nuts, seeds, and olive oil are fantastic for keeping inflammation at bay.
- Hydration is still always key, so eating liquid-high foods, like salads, watermelons or grapes, is great for that.
- Balance and moderation are your friends—watch your portions and combine carbs, proteins, and fats to keep your energy levels steady.
- Go for minimally processed foods as much as possible, avoiding those hidden sugars and unhealthy fats.
- Be aware that many “health foods” can be misleading. While it may look healthy or say it’s healthy, a quick scan of ingredients will tell you how processed it is.
- Choose organic or grow your own where you can. You’d be shocked at how many “healthy” foods have been so highly sprayed with pesticides or contain other contaminants. Some top culprits are fruit and veggies, especially avocados and olives; leafy greens and cruciferous veg; farmed fish or fish caught in contaminated waters; spices; and more. I don’t want to put you off the healthy stuff, but it helps to be mindful of commercial farming practices. While buying organic might be out of many peoples budgets, you can lessen the damage

> by buying from local farmers who use permaculture or other organic practices; choosing products with certifications indicating they are free from harmful contaminants (e.g., USDA Organic, Non-GMO Project Verified); and washing all fresh produce thoroughly.
>
> (Kubala, 2021)

Finally, enjoy your meals! Eating mindfully/purposefully can make a huge difference, helping you tune into your body's hunger and fullness cues while making mealtime a more pleasurable experience.

A Bite-by-Bite Approach

There will be times, for example at dinners out and about, or when the only food you can find on the road is some fast-food joint, that you just can’t eat as well or as healthily as you would like.

Once you identify the foods and substances that irritate your system—having experienced the extreme pain that can result—you can become adept at avoiding your biggest food triggers.

What helps me immensely is to not take an all-or-nothing stance on this. I take each meal on its own merits. I try to make the best choices I can, given the circumstances at that time. I aim to make each bite as healthy as I can, and not beat myself up mentally if due to circumstances I do not perfectly follow my eating plan. It does mean that I must be more careful for some days afterwards, and do my best to get back on track when circumstances normalize again.

Life is to be lived, and you will learn what your system can tolerate. So, if you need to treat yourself occasionally you will work out what your hard and soft limits are. It’s all about

balance, and more about feeling good than constant self-deprivation.

A Good Night’s Sleep

One thing we don’t often think about with inflammation is the healing nature of sleep.

While we slumber, our bodies and brains use the time to repair, heal, and filter out toxins and waste products. Some rather shocking experiments in Russia back in the 1960s, while completely unethical on any terms, showed that lack of sleep can quite literally drive you insane. The less sleep, the more you lose vital mental functioning, and worse.

One key mechanism that occurs during deep sleep is the release of anti-inflammatory molecules that help counteract the effects of pro-inflammatory substances produced during wakefulness.

Sleep deprivation can lead to increased levels of stress hormones and cytokines, both of which promote inflammation. Chronic sleep disturbances have been linked to a variety of inflammatory conditions, including cardiovascular disease, diabetes, and autoimmune disorders, highlighting the importance of prioritizing good sleep habits (Mullington et al., 2010).

If you are having low quality sleep, or have trouble falling asleep, there are practices that can help.

Here are a bunch of helpful sleep hacks:

- Go to bed and wake up at the same time every day, even on weekends, to regulate your body's internal clock.
- Engage in calming activities before bed, such as reading, gentle stretching, or taking a warm bath,

to signal to your body that it's time to wind down.

- Create a comfortable sleep environment by keeping your bedroom cool, dark, and quiet, and invest in a comfortable, supportive mattress and pillow.
- Minimize exposure to electronic devices, such as smartphones and computers, at least an hour before bedtime, as the blue light emitted can disrupt sleep. Try using a blue-light filter on your device screens.
- Avoid consuming caffeine and alcohol close to bedtime, as they can interfere with sleep quality and disrupt sleep patterns. Those 2 a.m. wake-ups happen alongside the sugar dip your body experiences after consuming excess alcohol the night before.
- Learn some relaxation techniques such as deep breathing, meditation, or progressive muscle relaxation to reduce stress and promote better sleep.
- Avoid vigorous exercise close to bedtime, as it can energize the body and make it harder to fall asleep. Lying with your legs up against a wall or some gentle stretching before bed is a great way to relax.
- Avoid spicy foods, heavy meals, and excessive liquids before bedtime.
- While short naps can be beneficial, especially for those who are sleep deprived, avoid long naps late in the day, as they can interfere with nighttime sleep.
- Try listening to MHz, alpha waves, or binaural beats to help soothe you to sleep. Set the timer to turn it off after about an hour. There are also sleep apps that are helpful with this feature.

Make your own sleep routine and stick to it. Maybe a slow winding down, a warm cup of tea, a bath or shower to get comfy and to relax tired muscles. Try some lavender spray on your pillow or bed sheets. Do some journaling or just read a few pages of a book before closing your eyes.

If you continue to struggle with sleep despite trying these hacks, consider seeking help from a healthcare professional or sleep specialist to address any underlying issues and develop a personalized sleep plan. There are loads of supplements that can help too, like melatonin, L-theanine, or valerian root capsules, for instance.

Something interesting to note is that those with neurodivergence, such as ADHD or ASD, will often have poor sleep as part of the deal. So if this is you, research what extra measures you can take to help you find a decent night’s sleep.

Sleep is one of the non-negotiables, so if it’s in need of improvement, give it priority until you get it under better control. It will help with inflammation and everything else.

Get Moving

If we don’t keep moving, we lose the ability to move with comfort and ease. We get poor circulation and vital nutrients and liquids can’t get to where they are needed. Our joints stiffen and muscles atrophy, and our mental health suffers.

Engaging in regular exercise can be a powerful tool for reducing body inflammation and stimulating overall health. It modulates inflammatory responses by decreasing levels of pro-inflammatory markers and stimulating the release of anti-inflammatory compounds.

Low-impact exercises are great if you are already achy, and they put less strain on inflamed joints and muscles. Slow

bodyweight squats, light hand weights training, or gentle flow yoga are all forms to try.

For individuals who may have limited mobility, activities like gentle stretching or chair yoga will be more accessible and can play a crucial role in reducing inflammation.

Yin yoga is a gentle and easy way to stay limber and promote healthy tendons, ligaments and joints.

The amount of exercise needed to reduce systemic inflammation can vary depending on factors such as your individual health status, fitness level, and the intensity of the exercise. However, research suggests that regular, moderate-intensity exercise can have marked anti-inflammatory effects on the body.

The American Heart Association recommends at least 150 minutes of moderate-intensity aerobic exercise or 75 minutes of vigorous-intensity aerobic exercise per week for adults. That equates to around 20–30 minutes of "movement" at least 4–5 days a week (*American Heart Association Recommendations for Physical Activity in Adults and Kids*, American Heart Association, 2024). A good gauge is to get your heart rate up to the point where you feel it, where your breathing is elevated. I remember too many weeks in my life of not getting this amount of activity in, and I know it didn't help my mind or body. Having these numbers in mind does help, I can gauge when I'm doing great or falling short of weekly minimums.

Spread out throughout the week, a nice variety of activities can help prevent monotony or boredom: hiking, swimming, jogging, power walking or doing HIIT (high intensity interval training) workouts, or perhaps if you find an activity that you particularly enjoy, you can just focus on that thing and dive deep, until you change your mind or direction. Incorporating strength training exercises at least two days

per week can further enhance the anti-inflammatory benefits of exercise. Lifting heavy weights or doing metabolic conditioning can greatly enhance the benefits you'll experience when added to aerobic exercise.

By making regular physical activity a part of your routine, even just chair yoga, gentle stretching, or simple at-home exercises, you can help reduce inflammation in the body and improve your overall health and well-being. So, if hitting the gym isn't your thing, it's still possible to find enjoyable and accessible ways to stay active, which can have profound effects on inflammation levels (Pesheva, 2023).

Creating a permanent space in my home for yoga and workouts was a total game changer for me. The space is ready whenever I get to it, with several kinds of yoga mats and a nice array of hand weights, a yoga ball, some blocks and bolsters. There is a "feet-up" bench for doing shoulder stand/inversions and a back roller for rolling out tight muscles. If you have limited space, even simply finding just one spot for the yoga mat to stay unrolled could be helpful in getting onto it more often. When it's rolled up and put out of sight it is easy to forget to use it.

Making exercise a social event is also really helpful. Many of my friends have joined me in that space over the years, which definitely helps with motivation, but has also strengthened my friendships in a unique way. In the summer, I also meet with some neighbors at a small local lake, and we swim to an island and back. Doing this together gets us all motivated for the group swim. I have watched the individuals in this little club develop goals and achieve them, improving strokes, breathing practices, and endurance. It's so easy to make excuses and just lay in bed, but our group effort helps keep us all showing up.

As always, it's important to listen to your body and start slowly after periods of little exercise or when just starting out. Gradually increase the intensity and duration over time to avoid injury and overexertion. Ultimately, the goal is to find a balance of exercise that is sustainable and enjoyable for you, while also providing the anti-inflammatory benefits that contribute to overall health and well-being.

Chat to an exercise specialist or your GP before getting started, for individualized guidelines.

Chapter 4: The Eating Equation

Let food be thy medicine and medicine be thy food.

—Hippocrates

It’s obvious that whatever you put into your mouth is going to have some effect on your body. We can understand that having a food allergy or eating something rotten is bad for us. We can see the direct result in the body’s reaction, almost immediately.

But we don’t see inflammatory responses so directly. Many years of poor food choices can add up. Inflammation is known as a silent killer because we don’t see its effects immediately, especially not in the early days. For years you think you are fine eating fried foods and sugary drinks, but down the line you find yourself suffering the effects in real time. You don’t want things to get this bad, but if they have, have faith that you can heal your body and get the pain under control. It comes down to daily choices, mindful choices, that steer away from the foods that inflame and towards the food that calms and soothes your body and your pain.

The experts tell us that it can take 3–6 months to start seeing significant changes once you embark on a cleaner eating plan (*5 Types of Foods That Cause Inflammation,* Cleveland Clinic, 2024), but positive changes can certainly be felt before that when making healthy food choices. That feeling is an incentive to keep going and stay on track.

Gut Health

The science is in, and it’s amazing! Your gut (gastrointestinal tract) not only digests and absorbs nutrients from food and liquids, and excretes waste, but it also contains neurons (brain cells). Perhaps this is that “gut feeling” we get when the “gut brain” is trying to send us messages.

The gut plays a crucial role in maintaining overall health, including the regulation of inflammation throughout the body. This complex system, which includes the stomach, intestines, colon and associated organs, is home to trillions of microorganisms collectively known as the gut microbiota. These microorganisms are essential for digesting food, synthesizing vitamins, and protecting against harmful pathogens. However, the gut microbiota also has a profound impact on the immune system, which can influence inflammation. An imbalance in gut microbiota, often referred to as dysbiosis, can lead to increased intestinal permeability, commonly known as "leaky gut". This condition allows toxins and partially digested food particles to enter the bloodstream, triggering an immune response and chronic inflammation.

The gut microbiota can influence inflammation through various mechanisms. For instance, beneficial bacteria in the gut produce short-chain fatty acids (SCFAs) like butyrate, propionate, and acetate, which have anti-inflammatory properties. These SCFAs help to maintain the integrity of the gut lining, regulate the immune response, and suppress the production of pro-inflammatory cytokines. Conversely, a reduction in beneficial bacteria or an increase in pathogenic bacteria can lead to a decrease in SCFA production, contributing to a pro-inflammatory state.

Your food intake plays a massive role in shaping the gut microbiota and, consequently, inflammation levels in your body. Diets high in fiber, fruits, vegetables, and fermented foods promote a healthy gut microbiota composition that supports anti-inflammatory processes. On the other hand, diets high in processed foods, sugars, and unhealthy fats can lead to dysbiosis and increased inflammation. This dietary impact on the gut microbiota illustrates the connection between lifestyle choices and inflammatory diseases. For example, the Mediterranean diet, rich in plant-based foods and healthy fats, has been associated with lower levels of inflammation and a reduced risk of chronic diseases.

Stress and lifestyle factors also influence gut health and inflammation. Chronic stress can alter gut microbiota composition and increase intestinal permeability, leading to a heightened inflammatory response. Lack of sleep and lack of exercise negatively impact gut health and contribute to inflammation. Exercise has been shown to positively affect the gut microbiota, promoting a diversity of beneficial bacteria and reducing inflammation. We need to take a holistic approach to health, where managing stress, maintaining a healthy diet, and engaging in regular physical activity are all considered important players.

Understanding the intricate relationship between gut and inflammation opens up new avenues for therapeutic interventions. Probiotics, prebiotics, and dietary modifications are being explored as potential treatments for inflammatory conditions. Probiotics, which are live beneficial bacteria, can help restore balance in the gut microbiota, while prebiotics, which are non-digestible fibers, serve as food for these beneficial bacteria. Together, they can enhance gut health and reduce inflammation. Additionally, working out your personalized nutrition plan can help prevent and manage inflammation-related diseases. Your

nutrition plan can start simple, and as you are able, it can expand. Perhaps the first step is to choose one thing to add and one thing to subtract from your diet, and really stick to it.

Diet

If a healthy gut needs a healthy diet, how do we get there? We've already discussed taking a lifestyle approach, and eating in a more mindful way, but which foods help and which do harm, when it comes to inflammation?

If you have been tracking your health, you will have discovered some of these food culprits, but as we are all unique, you will find you react more to some or less to others of these foods on the "naughty" list.

The Naughty List—Inflammatory Foods to Avoid

It's almost impossible to avoid all these things all of the time, as this is quite a long list. But if you are able to make more informed choices at least, going forward, and start eliminating the main culprits as much as possible, you could start to see positive effects.

Foods or substances that make systemic inflammation worse:

- **Refined Sugars**
    - Examples: Sweets, candies, soda, sugary drinks, desserts, sugary cereals.
    - Why: High intake of refined sugars can lead to insulin resistance, weight gain, and

increased production of inflammatory cytokines.

- **Artificial Additives and Preservatives**
    - Examples: MSG (monosodium glutamate), artificial sweeteners (aspartame, saccharin), food colorings.
    - Why: These substances can trigger immune responses in some individuals, leading to inflammation.
- **Refined Carbohydrates**
    - Examples: White bread, pastries, white rice, pasta made from refined flour.
    - Why: These foods have a high glycemic index, causing spikes in blood sugar levels and promoting inflammatory responses.
- **Trans Fats**
    - Examples: Fried foods, microwave popcorn, margarine, shortening, commercially baked goods (cakes, cookies, crackers, pies).
    - Why: Trans fats increase levels of LDL (bad cholesterol) and decrease HDL (good cholesterol), contributing to inflammation and heart disease.
- **Processed Meats**
    - Examples: Bacon, sausage, ham, hot dogs, deli meats.
    - Why: Processed meats often contain preservatives like nitrates and are high in saturated fats, which can trigger inflammatory processes.
- **Excessive Omega-6 Fatty Acids**
    - Examples: Corn oil, sunflower oil, soybean oil, eggs, mayonnaise, salad dressings.
    - Why: While omega-6 fatty acids are essential, excessive intake can lead to an

imbalance with omega-3 fatty acids, promoting inflammation.

- **Alcohol**
    - Examples: Beer, wine, spirits.
    - Why: High alcohol intake can disrupt gut microbiota, increase gut permeability (leaky gut), and trigger systemic inflammatory responses.
- **High-Sodium Foods**
    - Examples: Canned soups, fast food, salty snacks (chips, pretzels), processed cheeses.
    - Why: Excessive sodium can cause water retention and high blood pressure, contributing to inflammation.
- **Saturated Fats**
    - Examples: Red meat (beef, lamb), full-fat dairy products (cheese, butter), palm oil.
    - Why: Saturated fats can increase levels of cholesterol and inflammatory markers, contributing to systemic inflammation.
- **Gluten (for Sensitive Individuals)**
    - Examples: Wheat, barley, rye, many processed foods.
    - Why: In people with gluten sensitivity or celiac disease, gluten can trigger an inflammatory response in the gut and beyond.
- **Dairy (for Sensitive Individuals)**
    - Examples: Milk, cheese, yogurt, ice cream.
    - Why: For those with lactose intolerance or casein sensitivity, dairy can cause digestive issues and inflammatory responses.
- **Artificial Trans Fats**

    - Examples: Hydrogenated oils used in some margarines, fast foods, and packaged snacks.
    - Why: Artificial trans fats are particularly harmful, increasing inflammatory markers and the risk of chronic diseases.
- **Red and Processed Meat**
    - Examples: Beef, pork, lamb, bacon, hot dogs, sausages.
    - Why: High levels of saturated fat and compounds produced during cooking (like advanced glycation end products) can promote inflammation.
- **Processed Foods**
    - Examples: Fast food, ready-to-eat meals, packaged snacks.
    - Why: These foods often contain a combination of inflammatory substances, such as refined carbs, trans fats, and artificial additives.
- **Certain Vegetable Oils**
    - Examples: Soybean oil, corn oil, cottonseed oil.
    - Why: High in omega-6 fatty acids, which can disrupt the balance with anti-inflammatory omega-3 fatty acids, promoting inflammation.
- **Excessive Caffeine**
    - Examples: Coffee, black tea, energy drinks, caffeinated sodas.
    - Why: While moderate caffeine can be beneficial, excessive consumption can increase cortisol levels, leading to inflammation.

(*Inflammation,* Cleveland Clinic, 2021)

The Nice List—Anti-inflammatory Foods

Certain foods and substances can help reduce systemic inflammation due to their anti-inflammatory properties and their ability to support overall health. You don’t need to include all the foods every day, but again, it's about awareness and daily choices. Choices that you can make at the grocery store or at a restaurant if you have this list in mind.

- **Fruits**
    - Examples: Berries (blueberries, strawberries, raspberries), oranges, cherries, apples, and pineapples.
    - Why: Rich in antioxidants, vitamins, fiber, fruits help combat oxidative stress and inflammation. Berries, for example, are high in anthocyanins, which have strong anti-inflammatory effects.
- **Vegetables**
    - Examples: Leafy greens (spinach, kale), cruciferous vegetables (broccoli, cauliflower, Brussels sprouts), bell peppers.
    - Why: Packed with vitamins, minerals, and phytochemicals, vegetables reduce inflammation. Leafy greens are high in vitamins A, C, and K, which are known for their anti-inflammatory properties.
- **Healthy Fats**
    - Examples: Avocados, olive oil, nuts (walnuts, almonds), seeds (chia seeds, flaxseeds).
    - Why: These foods contain monounsaturated fats and omega-3 fatty

acids, which are known to reduce inflammation. Omega-3 fatty acids, found in flaxseeds and walnuts, are particularly effective in reducing inflammatory markers.

- **Fatty Fish**
    - Examples: Salmon, mackerel, sardines, trout.
    - Why: Rich in omega-3 fatty acids (EPA and DHA), fatty fish help lower inflammation and reduce the risk of chronic diseases related to inflammation.
- **Whole Grain**s
    - Examples: Brown rice, quinoa, oats, whole wheat.
    - Why**:** High in fiber and nutrients, whole grains help maintain a healthy gut microbiome, which can reduce inflammation. Fiber also helps regulate blood sugar levels, preventing inflammatory spikes.
- **Nuts and Seeds**
    - Examples: Almonds, walnuts, chia seeds, flaxseeds, hazelnuts.
    - Why: Nuts and seeds are high in healthy fats, fiber, and antioxidants, which help reduce inflammation. Walnuts, for example, contain omega-3 fatty acids, which are powerful anti-inflammatories.
- **Spices and Herbs**
    - Examples: Turmeric, ginger, garlic, cinnamon.
    - Why: These spices contain bioactive compounds with potent anti-inflammatory properties. Curcumin in turmeric and

gingerols in ginger are particularly effective in reducing inflammation.

- **Green Tea**
    - Examples: Matcha, regular green tea.
    - Why**:** Rich in polyphenols, particularly epigallocatechin gallate (EGCG), green tea helps reduce inflammation and protect cells from damage.
- **Legumes**
    - Examples: Lentils, chickpeas, black beans, kidney beans.
    - Why: High in fiber, protein, and antioxidants, legumes help reduce inflammatory markers and support a healthy gut.
- **Fermented Foods**
    - Examples: Yogurt, kefir, sauerkraut, kimchi, miso.
    - Why: Containing probiotics, these foods support a healthy gut microbiome, which is closely linked to reduced inflammation.
- **Dark Chocolate**
    - Examples: Dark chocolate (70% cocoa or higher).
    - Why: Contains flavonoids and antioxidants that can help reduce inflammation and improve vascular health.
- **Whole Soy Foods**
    - Examples: Tofu, tempeh, edamame.
    - Why: Contain isoflavones, which have anti-inflammatory properties. Whole soy foods are also high in protein and fiber.
- **Berries**
    - Examples: Cranberries, blueberries, goji, strawberries, raspberries, blackberries.

    - Why: High in vitamins and antioxidants, berries help reduce oxidative stress and inflammation. Anthocyanins in berries are particularly effective in fighting inflammation.
- **Garlic and Onions**
    - Examples: Garlic, onions, shallots, leeks.
    - Why: Rich in sulfur compounds, garlic and onions enhance immune function and reduce inflammation. Allicin in garlic is known for its anti-inflammatory properties.
- **Cruciferous Vegetables**
    - Examples: Broccoli, cauliflower, Brussels sprouts, cabbage.
    - Why: Contain sulforaphane, an anti-inflammatory compound that helps reduce oxidative stress and inflammation.
- **Tomatoes**
    - Examples: Fresh tomatoes, tomato juice, tomato sauce.
    - Why: High in lycopene, an antioxidant that reduces inflammation, particularly in the lungs.
- **Beets**
    - Examples: Fresh beets, beet juice.
    - Why: Contain betalains, which have potent anti-inflammatory properties.

Tailor your diet based on your preferences. Maybe you are vegetarian or have certain foods you love to hate, or are allergic to.

With that said, if you go for a good variety of what remains on the “nice” list, you should still manage to eat healthily and happily (*Inflammation,* Cleveland Clinic, 2021).

Some Tips and Hacks for Eating Right

Add anti-inflammatory snacks to your daily routine. This helps curb poor snack choices or binge eating, too.

- **Organic Nuts:** High in omega-3 fatty acids, nuts are excellent anti-inflammatory snacks. Eat them plain or buttered.
- **Dark Chocolate:** Because it contains flavonoids that actively reduce inflammation, dark chocolate can be a delightful snack. Take care that the cacao percentage is a minimum of 72%. And don’t overdo it; it’s still chocolate and contains fats. Sprinkle some chunks into some mixed nuts to keep things in balance.
- **Avocado:** High in the antioxidant vitamin E, avocados promote healthy gut flora, which aids in digestion and can prevent inflammation. Try it on some whole-grain, nutty bread/toast.
- **Chickpeas:** Also known as garbanzo beans, chickpeas are complex carbohydrates that help prevent sugar spikes (a contributor to inflammation). They’re also high in fiber and phytonutrients. Chickpeas can be used to make hummus, or can be cooked and eaten in salads, soups, stews, pasta dishes, curries or even roasted and eaten as a crunch snack. There is even a traditional Italian pasta sauce that is made from pureed chickpeas.
- **Edamame Beans:** Rich in antioxidants, edamame is steamed or boiled soybeans (still in the pod).
- **Broccoli:** This hearty vegetable is tasty raw, roasted, or steamed. As a sulfur vegetable (and overall wonder-food), broccoli provides a crucial

building block of glutathione, a substance our body produces to decrease inflammation.

- **Seeds:** Seeds are sources of omega-6 and omega-3 fatty acids, including alpha linoleic acid. Try mixing sunflower and pumpkin seeds with nuts and a small amount of dried fruit for a sustaining trail mix.
- **Berries:** High in antioxidants and anthocyanins, raspberries, blueberries, strawberries, and blackberries reduce inflammation.
- **Apples With Cinnamon:** Apples—and especially the skin— contain vitamin C (since you're eating the skin, get organic if possible). Cinnamon is a well-known anti-inflammatory, so sprinkle some on your apple slices. Eat them plain, or with organic walnut, hazelnut, almond or peanut butter.
- **Orange Slices:** These are rich in vitamin C and delicious. Notice, however, that orange juice didn't make this list; it's too sweet. Whole fruits provide the fiber to counteract the sugar, but fruit juices spike your blood sugar horribly.
- **Popcorn:** In moderation (so as not to spike your blood sugar), antioxidant-rich popcorn can be an excellent anti-inflammatory snack. Be sure to pop kernels on the stove, the old-fashioned way—not in a microwaved bag—to avoid inflammatory chemicals and coatings.
- **Fermented Foods:** The probiotics in fermented foods aid in digestion and help breed a friendly gut biome. Try having a few bites of sauerkraut or kimchi throughout the day if you enjoy these types of foods.

And these are recommendations from registered dietician Erin Coates:

- Go meatless once or twice a week.
- Limit meals that feature processed meats to less than once per day.
- Treat meat like a side dish rather than the main course—instead, make vegetables, fruits and fiber-filled carbohydrates the main events.
- Choose meats that have less than 4 grams of saturated fat per serving (reality check: most processed meats come in at 5 grams or more per serving).

(*Inflammation,* Cleveland Clinic, 2021)

Delicious and Healthy Easy Recipes

These recipes are packed with ingredients known for their anti-inflammatory properties, such as leafy greens, berries, turmeric, and omega-3 fatty acids.

Soups

- **Turmeric Ginger Carrot Soup**
    - Ingredients: Carrots, onion, garlic, ginger, turmeric, vegetable broth, coconut milk, olive oil, salt, pepper.
    - Instructions: Sauté onion, garlic, and ginger in olive oil until softened. Add carrots and turmeric and cook for a few minutes. Pour in the vegetable broth and bring to a boil. Simmer until carrots are tender, then blend until smooth. Stir in coconut milk, season with salt and pepper, and serve warm.

- **Green Detox Soup**
    - Ingredients: Broccoli, spinach, zucchini, celery, onion, garlic, vegetable broth, lemon juice, olive oil, salt, pepper.
    - Instructions: Sauté onion and garlic in olive oil. Add chopped broccoli, spinach, zucchini, and celery. Pour in vegetable broth and bring to a boil. Simmer until vegetables are tender, then blend until smooth. Stir in lemon juice and season with salt and pepper.

Smoothies

- **Berry Beet Smoothie**
    - Ingredients: Beets (cooked and cooled), mixed berries (strawberries, blackberries, blueberries, raspberries), spinach, Greek yogurt, almond milk, honey.
    - Instructions: Blend all ingredients until smooth. Add more almond milk if necessary to reach desired consistency. Serve chilled.
- **Turmeric Mango Smoothie**
    - Ingredients: Mango, banana, turmeric, ginger, almond milk, Greek yogurt, chia seeds.
    - Instructions: Blend all ingredients until smooth. Adjust the sweetness with a bit of honey if needed. Serve immediately.

Savory Dishes

- **Salmon and Quinoa Bowl**
    - Ingredients: Salmon fillets, quinoa, avocado, cherry tomatoes, spinach or

other leafy green, olive oil, lemon juice, salt, pepper.
    - Instructions: Cook quinoa according to package instructions. Season salmon with salt and pepper, and pan-sear until cooked through. In a bowl, combine quinoa, sliced avocado, halved cherry tomatoes, and spinach or other greens. Top with salmon, drizzle with olive oil and lemon juice, and serve.
- **Chickpea and Sweet Potato Curry**
    - Ingredients: Chickpeas (cooked or canned), sweet potatoes, coconut milk, onion, garlic, ginger, turmeric, cumin, coriander, spinach, olive oil, salt, pepper.
    - Instructions: Sauté onion, garlic, and ginger in olive oil. Add sweet potatoes and spices, cooking until sweet potatoes are slightly tender. Add chickpeas and coconut milk, and simmer until sweet potatoes are fully cooked. Stir in spinach until wilted, and season with salt and pepper.

Sweet Dishes

- **Chia Seed Pudding**
    - Ingredients: Chia seeds, almond milk, vanilla extract, honey, berries.
    - Instructions: Mix chia seeds, almond milk, vanilla extract, and honey in a bowl. Let sit in the refrigerator overnight. Serve topped with fresh berries.
- **Anti-Inflammatory Golden Milk Latte**
    - Ingredients: Almond milk, turmeric, ginger, cinnamon, black pepper, honey.

    - Instructions: In a saucepan, warm almond milk. Stir in turmeric, ginger, cinnamon, and a pinch of black pepper. Simmer for a few minutes. Remove from heat and stir in honey. Serve warm.
- **Berry Almond Smoothie Bowl**
    - Ingredients: Mixed berries, almond milk, banana, almond butter, chia seeds, granola.
    - Instructions: Blend berries, almond milk, and banana until smooth. Pour into a bowl and top with almond butter, chia seeds, and granola.
- **Ricotta Mousse**
    - Ingredients: Ricotta cheese, vanilla extract, optional maple syrup.
    - Instructions: Blend together with a spoon in proportions to your own liking, and enjoy! Omitting the maple syrup makes this a delicious zero-sugar dessert. Can use other extracts such as almond, hazelnut or lemon with an added lemon zest.

These recipes are not only tasty but also help reduce inflammation. Enjoy experimenting with these dishes!

Doing a Gut Reset

Healing your gut and doing a gut reset might sound a bit intimidating, but it's just about making some simple, mindful changes to your daily routine. Your gut health is

crucial because it affects everything from your digestion to your immune system, mood, and even skin health.

Here are some friendly tips to get you started on a gut reset:

First thing, think about what you're eating. Your gut loves a diet rich in diverse, fiber-filled foods like fruits, vegetables, whole grains, nuts, and seeds. These foods are like a buffet for the good bacteria in your gut, helping them thrive and outcompete the harmful bacteria. Fermented foods like yogurt, kefir, sauerkraut, and kimchi are fantastic too because they introduce beneficial probiotics directly into your system.

Cutting back on processed foods, sugars, and unhealthy fats is also key. These can disrupt the balance of bacteria in your gut, leading to inflammation and other issues. Also, incorporate more whole foods into your meals. If you’re looking for a sweet treat, try to reach for fruit. For those savory cravings, think of nuts or seeds, they’re satisfying to the body and can be snacked on.

Hydration plays a big role in gut health, too, as we have learned. During a gut reset, drinking plenty of water helps keep things moving smoothly through your digestive tract and supports the lining of your intestines. Herbal teas, particularly those with ginger or peppermint, can be soothing and supportive for digestion. Think of water and herbal teas as a gentle cleanse for your gut, flushing out toxins and keeping everything in working order.

Don't underestimate the power of stress management on your gut. Incorporate activities that help you unwind and relax. A happy mind often leads to a happy gut. Deep breathing exercises can be incredibly helpful in calming both your mind and your digestive system.

Lastly, consider supplements like probiotics and prebiotics. Probiotics are live beneficial bacteria that can help replenish your gut flora, while prebiotics are fibers that feed these good bacteria. It’s like planting a garden: probiotics are the seeds, and prebiotics are the fertilizer, and together they help cultivate a thriving gut environment. Give your gut the best chance to heal and thrive. It's all about balance, variety, and nurturing your body from the inside out. Your gut will thank you, and you’ll feel the benefits throughout your whole body.

Chapter 5: Fasting

> *Periodic fasting can help clear up the mind and strengthen the body and the spirit.*
>
> —Ezra Taft Benson

Fasting has been practiced for centuries across various cultures and religions. Recently, it has gained mainstream popularity not just for its spiritual and cultural significance, but for its potential health benefits. When adopted as a lifestyle, fasting can help metabolic health, weight management, and overall well-being. Integrating fasting into a regular routine requires understanding its principles and practical strategies for implementation.

Basic Overview of the Health Benefits of Fasting

> *Fasting is the most natural and original process of cleansing and purifying the body.*
>
> —Paul Bragg
> Fasting and life extension specialist

Fasting offers numerous benefits, supported by a growing body of research:

- **Weight Management:** Fasting can help reduce calorie intake, leading to weight loss and improved body composition. It can also enhance metabolic rate and fat-burning processes.

- **Improved Insulin Sensitivity:** By giving the body breaks from constant eating, fasting can improve insulin sensitivity, which is crucial for managing blood sugar levels and reducing the risk of type 2 diabetes.
- **Cellular Repair:** Fasting promotes a cellular process called autophagy, where cells remove damaged components and regenerate. This can help in slowing down the aging process and reducing the risk of chronic diseases.
- **Joint Health:** During fasting, the body breaks down toxic calcification in the joints that causes stiffness and hinders mobility, re-lubricating the joint tissues with synovial fluid and restoring a youthful feeling.
- **Heart Health:** Fasting can reduce risk factors associated with heart disease, such as blood pressure, cholesterol levels, and inflammation.
- **Mental Clarity and Brain Health:** Recent studies suggest that fasting may enhance brain function, improve mood, and protect against neurodegenerative diseases like Alzheimer's.
- **Inflammation Management:** It decreases the levels of inflammatory markers and cytokines in the body. During fasting, the body undergoes metabolic changes that enhance cellular repair processes and reduce oxidative stress, which in turn helps to lower chronic inflammation. Additionally, fasting promotes autophagy, a mechanism where cells remove damaged components, further mitigating inflammatory responses.

These combined effects contribute to improved overall health and reduced risk of inflammation-related diseases. It

is, in essence, a mechanism for tapping into an internal fountain of youth.

Understanding the Types of Fasting

There are several types of fasting, each with different patterns and benefits.

- **Intermittent Fasting (IF):** This involves cycling between periods of eating and fasting. Common methods include the 16/8 method (fasting for 16 hours and eating within an 8-hour window), the 5:2 method (eating normally for five days and restricting calories for two non-consecutive days), and the eat-stop-eat method (24-hour fasts once or twice a week).
- **Alternate-Day Fasting:** This pattern alternates between days of normal eating and days of significant calorie restriction or complete fasting.
- **Extended Fasting:** This involves fasting for periods of 36–72 hours, done on a weekly or monthly basis, or even various types of longer fasts can be done up to a few times a year, for the maximum benefit of the body. These longer fasts need to be done wisely and carefully, with days of preparation and careful re-feeding afterward.

Scientific Basis: What Happens During and After Fasting?

Prolonged fasting depletes electrolytes that are vital for cellular energy production. To understand this a bit more, we need to explore what happens in the body during a fast.

Let’s take a look:

- **Metabolic Shift:**
    - During fasting, the body shifts from using glucose as its primary energy source to relying on stored fat. This results in:
        - **Ketosis:** The liver converts fatty acids into ketones, providing an alternate energy source for the brain and muscles.
        - **Protein Sparing:** The body reduces protein breakdown, preserving muscle mass as fat stores are utilized.
- **Electrolyte Depletion:**
    - Glycogen stores are depleted within 24–48 hours of fasting, and glycogen breakdown releases water and electrolytes. Sodium, potassium, magnesium, and phosphate levels drop, leaving the body in a delicate state.
    - Prolonged fasting can lead to a decrease in these electrolytes, which play vital roles in cellular function.
- **Digestive Rest:**
    - Digestive enzyme production decreases during fasting as the gastrointestinal tract rests. This makes the sudden intake of large or complex meals hard to process.

Understanding the Stages of Fasting

When you fast, your body begins a remarkable transformation, tapping into ancient survival mechanisms that support health and longevity.

Rather than shutting down, as one might think, the body shifts its priorities: it conserves resources, optimizes energy use, and repairs itself. This is initiated through stages of cellular behavior that allow the body to efficiently tap into stored energy, recycle damaged components, and maintain optimal function even in the absence of food.

The first stage, called ketosis, enables the brain to continue functioning during prolonged fasting by switching into a state of utilizing ketones—an alternative fuel for the body, derived from fat.

Next, the autophagy stage ensures that the body doesn’t waste energy maintaining dysfunctional or damaged cells, but instead breaks them down and discards them.

These mechanisms not only kept our ancestors alive during lean times but also supported their health by regularly "resetting" and rejuvenating the body. Today, when food scarcity is rare for many, purposefully fasting reactivates these processes, providing cellular repair, energy regulation, and immune strength.

The two key processes that kick in during a fast, ketosis and autophagy, need some explanation.

Ketosis: Switching Fuel Sources

Ketosis typically begins after 12–16 hours of fasting. Your body, having used up its immediate energy source (glucose), starts breaking down stored fat into molecules

called ketones, which serve as fuel. Ketones are particularly efficient energy sources for the brain and muscles, helping to maintain physical and cognitive performance even when food is scarce. This metabolic state is why many people report feeling sharp and energetic during extended fasts (Pelz, 2020).

You can recognize when your body is in ketosis by observing physical symptoms and using testing methods, but also by just paying attention to how you feel.

Physical Signs of Ketosis

- **Increased Energy and Mental Clarity:** Once your body adapts to using ketones for fuel, many people report feeling more focused and energetic.
- **Reduced Appetite:** Ketones help regulate hunger hormones, which can lead to naturally eating less.
- **Weight Loss:** Initially, water weight is lost as glycogen stores are depleted, followed by fat loss as the body breaks down fat for energy.
- **Fruity Breath (Ketone Breath):** A distinct, slightly sweet or fruity smell on the breath is common due to acetone, a byproduct of ketone metabolism.

Testing for Ketosis

- **Urine Ketone Strips:** These inexpensive strips measure excess ketones excreted in urine. They are easy to use but may become less accurate over time as your body adapts to using ketones efficiently.
- **Blood Ketone Monitors:** These devices measure the level of beta-hydroxybutyrate (BHB), a primary ketone, in your blood. Levels between 0.5–3.0 mmol/L typically indicate ketosis.

- **Breath Ketone Analyzers:** These devices detect acetone levels in your breath, providing a non-invasive way to measure ketosis.

How Ketosis Feels

- **Ketosis Flu:** At the start, some people experience temporary symptoms like fatigue, headaches, or irritability as the body adjusts. This is known as the “keto flu”.
- **Stable Energy Levels:** Once adapted, you may notice a lack of energy dips or crashes, even during long periods without eating.

Tracking these signs can help you identify whether you're in ketosis and how well your body is adapting to burning fat as its primary fuel source (Palinski-Wade, 2019).

Autophagy: Cellular Housekeeping

Around 24 hours into a fast, the process of autophagy kicks in. This is your body’s way of “cleaning house”. Old, damaged or dysfunctional cellular components are broken down and recycled. By doing so, autophagy reduces inflammation, supports cellular repair, and may even help protect against chronic diseases like cancer and Alzheimer’s.

Autophagy is a cellular process, so its effects aren’t directly visible like ketosis. However, there are indirect signs and benefits you might notice as your body undergoes this repair and renewal phase during fasting (Pelz, 2020).

Reduced Inflammation

Autophagy clears out damaged cells and proteins that contribute to inflammation. If you notice reduced joint pain,

swelling, or improvements in conditions like eczema or other inflammatory issues, this could indicate autophagy at work.

Improved Energy Levels

As autophagy clears out dysfunctional mitochondria (the energy powerhouses of your cells) and recycles cellular components, you might feel a boost in energy over time.

Enhanced Skin Appearance

Some people report clearer, healthier skin during extended fasts. This might result from the removal of damaged cells and the activation of cellular repair mechanisms.

Faster Recovery from Illness or Physical Strain

This process of eliminating old cells and stimulating the production of new ones can enhance recovery from illnesses and reduce susceptibility to infections.

Reduced Hunger or Appetite

As your body shifts into repair and conservation mode, you might notice a significant decrease in appetite. This is common during the later stages of fasting and aligns with the body's focus on internal repair rather than external food intake.

Mental Clarity

Clearing out cellular waste in the brain can improve cognitive function. Many people report sharper thinking and better focus during periods of autophagy.

Weight Loss and Body Composition Changes

Autophagy works alongside ketosis to metabolize fat and muscle protein selectively, sparing vital tissues. Noticeable

fat loss, especially in stubborn areas, can occur as the body optimizes itself.

While these signs are indirect, the most reliable way to know autophagy is occurring is to follow the science of timing (starting around 24–48 hours of fasting, peaking around 72 hours). For more precise tracking, biomarkers like reduced insulin levels, increased ketones, and markers like AMPK (adenosine monophosphate-activated protein kinase) are associated with autophagy but require lab testing to confirm (*Autophagy*, Cleveland Clinic, 2022).

Immune Rejuvenation

For the experienced faster, an even further transformative phase of fasting occurs around 72 hours, or three days into a fast. Caution must be used, like in anything. A person would not take their first ever skateboard attempt off of a 50-foot ramp, so if you have never fasted before, attempting to pull off a 72 hour fast is simply not appropriate. But if done properly, after working your body up to the event over time, and learning how your body reacts, extended fasts like this are indeed accessible to us as a way to help increase vitality.

Long fasts are beneficial in a profound way if done properly. Three days into fasting, the body actually begins producing brand-new immune cells. This process, linked to stem cell activation, involves the regeneration of white blood cells, which are crucial for a strong immune system. Essentially, your body flushes out old or damaged immune cells and replaces them with fresh ones, potentially enhancing your ability to fight off infections and recover from illnesses.

Intermittent Fasting and Inflammation

Intermittent fasting (IF) is gaining recognition for its impact on reducing inflammation. It turns out that giving our digestive system regular breaks can do wonders for our body’s inflammatory response. Intermittent fasting also affects our gut health, which is closely linked to inflammation. During fasting periods, our gut bacteria go through shifts that promote a more balanced microbiome. A healthy gut can better regulate immune responses and prevent the kind of chronic inflammation that’s connected to a host of diseases. It’s like giving your gut a chance to recalibrate and find its optimal balance.

Moreover, IF helps with insulin sensitivity and reduces insulin levels, which can lower inflammation. High insulin levels are often associated with increased inflammation, so by keeping these levels in check, IF can indirectly help reduce inflammatory markers. It’s fascinating how interconnected our systems are; what and when we eat can have cascading effects throughout our body. It’s a small change that can lead to big health benefits, including less inflammation, which means feeling better and potentially avoiding chronic health issues down the line (Hicks, 2024).

How To Do IF

Intermittent fasting doesn’t require you to follow a complicated diet—just a shift in timing. It is flexible enough to fit into most lifestyles, with different varying ways to do it successfully.

Starting with any of these methods can help ease you into intermittent fasting and fasting in general. The key is to choose the one that feels the most comfortable and sustainable for you. Remember to stay hydrated, listen to your body, and adjust as needed till fasting fits seamlessly into your routine, bringing a host of health benefits with it.

The reward becomes a motivator once you experience how good you are feeling.

The 12/12 Method

This is one of the simplest ways to dip your toes into intermittent fasting. With the 12/12 method, you fast for 12 hours and only eat during the other 12 hours. It’s a gentle introduction because it often aligns with natural eating/sleeping patterns. For instance, if you finish dinner by 7 PM, you wouldn’t eat again until 7 AM the next day. This method allows you to experience some of the benefits of fasting without making drastic changes to your daily routine. Plus, most of your fasting time occurs while you’re sleeping, making it easier to stick to. Essentially, you’re just stopping that late night snacking, which is a good first step toward training the body and mind to accept fasting in general.

The 16/8 Method

The 16/8 method is still very manageable. You fast for 16 hours and eat during an 8-hour window. A popular way to do this is to skip breakfast and only eat between noon and 8 PM. This way, you’re still able to enjoy lunch and dinner as usual. For example, you could have your first meal at noon, enjoy a snack in the afternoon, and have dinner by 7 PM. This method gives your body a longer fasting period, which can enhance the benefits like improved metabolism and reduced inflammation, while still allowing you to enjoy two substantial meals.

The 20/4 Method

The 20/4 method is a more advanced intermittent fasting schedule. You fast for 20 hours and eat during a 4-hour window. This may mean that you eat between 1–5 p.m. only,

but you can eat mostly whatever you wish, with mindful choices in terms of nutrition applied.

The OMAD Method

OMAD is an acronym for One Meal A Day, and it is in fact that simple. People who choose this method only eat once per day—one nice nutritious meal at whatever time suits them best. I have seen this method transform people, and they claim that they are able to adapt to the challenge with some time and effort. They plan their one meal with care each day and really look forward to it and enjoy it to the fullest.

The 5:2 Method

The 5:2 method is a bit different in that it doesn’t involve daily fasting. Instead, you eat normally for five days of the week and restrict your calorie intake to about 500–600 calories on the other two non-consecutive days. This approach is flexible and can fit into a busy lifestyle without feeling too restrictive. On the low-calorie/fasting days, focus on eating only nutrient-dense, low-calorie foods like vegetables, lean proteins, and easy-to-digest soups. This method can be appealing because it allows you to eat normally most of the week, making it easier to sustain over the long term.

Addressing Challenges of Fasting

Integrating fasting into a routine can come with tough moments, such as initial hunger pangs, social eating situations, and during times of low energy. If you have any blood sugar issues or other health concerns, it’s always best to take it slow at first and also chat to your GP.

Some of the top challenges include:

- **Hunger Management:** Hunger can be a real challenge at first, and it can come in waves that can be overcome by drinking water and staying busy. Have comfort in the fact that hunger typically decreases in intensity as your body adjusts to the new eating pattern. Foods that help you feel fuller for longer include high-fiber foods, healthy fats, proteins, soups, smoothies and healthy broths, so incorporate these foods into your eating windows.
- **Social Situations:** Plan your fasting schedule around social events when possible, but if not and you're fasting during an event, focus on the experience and opt for non-caloric beverages. Sometimes letting the people who you are with know about your fasting can be helpful. It may even turn out that you inspire someone by sharing what you're doing, and why. Never forget your reason for fasting, let it help you during moments that challenge your willpower. Eventually you may find that you simply fast in a private way that nobody even notices, and it can feel like a flex of willpower to simply be unwavering, in whatever situation, without drawing attention to it at all.
- **Energy Levels:** To help maintain good energy levels, ensure that during eating times your meals are balanced and nutritious. If your energy levels dip, and you think your food is on track, consider adjusting your fasting window. Only incorporate light, low-intensity exercise during fasting periods if you experience lack of energy. Listen to your body and take short naps when needed until things even out.

What Typically Doesn’t Break a Fast

- **Water:** Plain water is the best option for staying hydrated during a fast. It’s crucial to drink plenty of water to keep your body functioning properly in a fasting state.
- **Black Coffee:** Coffee contains minimal calories and can even help suppress appetite. However, adding cream, sugar, or any other caloric additives would break the fast, and too much coffee/caffeine is not good either.
- **Herbal Tea:** Unsweetened herbal teas are a great choice. Make sure they don't contain added sugars or flavors that might contribute calories. Consider medicinal herbal options in the upcoming section of this book under the heading Herbal Allies.
- **Apple Cider Vinegar:** Some people add a small amount of apple cider vinegar to their water during a fast (1–2 tsp per 8 oz glass). It’s believed to have minimal impact on insulin levels and can provide health benefits, but it should be used sparingly.
- **Electrolytes:** During extended fasting, some people use electrolyte supplements to maintain proper hydration and mineral balance. These are typically non-caloric, but it’s important to check the labels for added sugars or other caloric ingredients. “Ketone” drinks are available, which help with energy and curbing appetite. Until your body gets used to them they can have a laxative effect, so ease into using these drinks until you see how your body reacts.

(Gunnars, 2024)

Re-Feeding

You don’t often hear about this crucial fasting stage in most pop diet blogs, but if you are going too fast it needs considering upfront.

It is imperative with every fast, especially in long fasts, that the “re-feeding” process be properly implemented to prevent a shock to the system and to optimize the practice.

At the end of the period of fasting, we are still in a state of play, so to speak, until we have properly re-nourished our bodies and come back to a “normal” state of digestion. Like a runner who has just run a marathon, they must walk it off for a while to prevent their muscles from constricting after pushing their body to its limits. The finish line is not the actual end of the marathon experience. Similar consideration and care must also be taken when finishing a period of fasting, which is a marathon of its own variety, so to speak.

Refeeding after fasting is your golden opportunity to reset your body with care and intention. By following a few simple guidelines, you can make the transition smooth and rewarding. Think of it as gently waking up your digestive system, nourishing it with the essentials it needs to thrive. Start small, focus on nutrient-dense foods, and listen to your body as you reintroduce fuel. With patience and mindfulness, re-feeding becomes the bridge to maximizing your fasting benefits—leaving you feeling energized, balanced, and ready to take on the world.

Some Basic Guidelines for Re-Feeding

Re-feeding after fasting is a nuanced process that demands care and gradual progression to ensure the body transitions safely from a fasting state to normal eating patterns. This process is particularly important after extended fasts (48+ hours), as the body undergoes significant physiological

changes during fasting that can make sudden food intake potentially harmful.

General Guidelines

Several leading experts, including well-known experts such as Dr. Jason Fung (*The Obesity Code* and *The Diabetes Code*) and Dr. Valter Longo (*The Longevity Diet*) have run several long studies into fasting and re-feeding. Key scientific researchers summarize their findings thusly:

- **Electrolyte Management:** Research emphasizes the importance of replenishing **phosphate, magnesium, and potassium** during re-feeding to avoid re-feeding syndrome (Mehanna et al., 2018, *BMJ*).
- **Gradual Caloric Intake:** Studies recommend starting with **20 kcal/kg/day** for malnourished individuals and increasing intake gradually over 5–7 days.
- **Digestive Adaptation:** A study by Cahill and Owen (1968) highlights how prolonged fasting decreases enzyme production, necessitating **gentle food reintroduction**.

Guidelines Explained

In layman's terms, this is what you should keep in mind:

- **Start Small and Simple:**
    - Begin with easily digestible, nutrient-dense foods such as:
        - Bone broth (rich in electrolytes and gentle on the stomach).
        - Cooked vegetables (options include zucchini, spinach, or carrots).

        - Small portions of fruits (low-sugar varieties like berries).
    - Avoid processed or high-fat foods initially, as they can overwhelm the digestive system.
- **Gradually Increase Caloric Intake:**
    - On the first day, keep portions small—around 200–400 calories spread across multiple meals.
    - Over the next 3–5 days, incrementally increase meal sizes while monitoring how your body responds.
- **Prioritize Electrolytes:**
    - Sodium, potassium, magnesium, and phosphorus levels can drop during fasting. Replenish them with:
        - Broths, coconut water, or electrolyte supplements.
        - Foods rich in these minerals, like leafy greens or avocados.
- **Incorporate Protein Slowly:**
    - Lean proteins like chicken, fish, or tofu can be introduced gradually after initial re-feeding days.
    - Excess protein too soon can strain the kidneys and digestive system.
- **Avoid Common Triggers:**
    - Limit sugar, caffeine, alcohol, and highly processed foods as they may cause bloating, spikes in blood sugar, or digestive discomfort.
- **Stay Hydrated:**
    - Rehydrate consistently with water or herbal teas. Avoid overhydrating, as this can dilute electrolytes.

Risks of Improper Re-Feeding

Fasting offers numerous benefits, from enhanced cellular repair and reduced inflammation to improved metabolic health. However, the critical phase of re-feeding can pose risks if mishandled, such as digestive distress or the potentially life-threatening re-feeding syndrome. These risks occur when the body, primed for fasting, is overwhelmed by sudden shifts in nutrients and electrolytes. Fortunately, with careful planning and gradual reintroduction of food, these dangers are easily avoidable. By mastering the re-feeding process, you can safely unlock the full potential of fasting while minimizing its risks—ensuring a transformative experience for both body and mind.

You still need to be aware of the risks in order to understand the importance of handling re-feeding correctly. The body, adapted to a low-insulin state during fasting, experiences a sudden surge in insulin production in response to glucose.

Potential Consequences of a Sudden Insulin Surge

- Hypophosphatemia (low phosphate levels).
- Hypokalemia (low potassium levels).
- Hypomagnesemia (low magnesium levels).
- Cardiac arrhythmias.
- Neurological symptoms.

This can play out in different ways:

- **Refeeding Syndrome:**
    - When food is reintroduced, a surge in insulin secretion drives electrolytes, particularly phosphate, into cells to process glucose. This can lead to dangerously low blood levels of

phosphate, potassium, and magnesium, causing:
        - Cardiac arrhythmias.
        - Neurological issues like confusion or seizures.
        - Respiratory failure due to weakened diaphragm muscles.
- **Digestive Upset:**
    - Symptoms like bloating, cramping, diarrhea, or nausea can occur if the digestive system is overwhelmed with too much food too soon.
- **Blood Sugar Spikes**:
    - A sudden influx of carbohydrates after fasting can lead to rapid blood sugar fluctuations, causing fatigue, dizziness, or hypoglycemia.

For help in preventing the above during re-feeding, please see the sample plan below.

A Sample Re-Feeding Plan

Day 1: Gentle Reintroduction

- **Goal:** Allow the digestive system and metabolism to ease back into activity.
- **What to Eat:**
    - Bone broth—high in electrolytes (sodium, potassium) and gentle on the stomach.
    - Steamed vegetables like zucchini, spinach, or carrots for fiber and minerals.
    - Low-sugar fruits, like berries. Also consider diluted fruit juice for natural sugars.
    - **Avoid processed or high-fat foods initially**, as they can overwhelm the

digestive system.
- **Meal Size:** Small portions, spread over 3–4 meals (200–400 calories total).

Day 2: Gradual Calorie Increase

- **Goal:** Provide additional nutrients while monitoring for digestive tolerance.
- **What to Add:**
    - Lean proteins like soft poached eggs, white fish, or tofu.
    - Healthy fats like avocado (or a drizzle of olive oil).
    - **Small amounts** of slightly more complex carbs like well-cooked quinoa or sweet potato.
- **Meal Size:** Increase slightly to 400–600 calories, still in small portions.

Days 3–5: Transitioning to Regular Meals

- **Goal:** Gradually return to a balanced diet.
- **What to Include:**
    - Whole grains like oatmeal or brown rice.
    - Dairy or dairy alternatives like yogurt for probiotics.
    - **Small amounts** of legumes, nuts, and seeds.
- **Meal Size:** Return to standard meal portions, but keep an eye on calorie and electrolyte balance.

Real-Life Example: Re-Feeding from a 5-Day Fast

- **Scenario:** A 5-day water fast with no caloric intake.
- **Day 1 Plan:**
    - Morning—a cup of warm vegetable broth.
    - Midday—half a cup of steamed zucchini.
    - Evening—a small smoothie with water, spinach, and a few blueberries.
- **Day 2 Plan:**
    - Morning—soft-boiled egg with half an avocado.
    - Midday—small piece of baked white fish with steamed carrots.
    - Evening—sweet potato mash with olive oil and a handful of greens.
- **Day 3 Plan:**
    - Include oatmeal with almond milk and a sprinkle of nuts for breakfast.
    - For lunch and dinner, include balanced meals incorporating protein, healthy fats, and whole grains.

Expert Tips

- **Track Symptoms:**
    - Watch for fatigue, bloating, or irregular heartbeat, and reduce portions if these arise.
- **Prioritize Electrolytes:**
    - Use electrolyte-rich drinks (coconut water, broths) or supplements if necessary.
- **Consult Professionals:**

    - For fasts longer than 5 days (or if you have underlying health issues), seek medical or dietitian guidance.
- **Hydration Matters:**
    - Continue drinking water to support kidney function and nutrient absorption.

Refeeding is a crucial stage of fasting, often as important as the fasting itself. By adopting a gradual, nutrient-focused approach, you can maximize the benefits of fasting while minimizing risks. Tailor your plan to your body’s needs, monitor responses, and adjust as necessary (Longo, 2019).

Things Not to Forget When Fasting

It’s extremely important to drink plenty of water to stay hydrated when engaged in any part of the fasting process.

Always pay attention to your body's signals. If you feel weak, dizzy, or unwell, it may be necessary to adjust your fasting pattern. There can be moments of discomfort, especially the first time or two that you fast, but that discomfort is normally associated with the body ridding itself of toxins and should pass. A lifetime of toxic buildup is a lot to clean out of the body, it is all part of the process.

The idea is to combine fasting with other healthy lifestyle habits like regular exercise, adequate sleep, and stress management. Stick to your chosen fasting routine regularly to allow your body to adapt and maximize the benefits. Set your phone with alarms that signal eating start and stop times to help keep you on track if needed or download a fasting app, of which there are many options.

Again, re-feed slowly and mindfully when doing any type of fast and always consult your healthcare provider about any specific precautions you should be taking.

Fasting as a lifestyle can offer significant health benefits and is adaptable to various schedules and preferences. By understanding the different types of fasting, starting gradually, and incorporating practical strategies, you can make fasting a sustainable part of your routine.

Chapter 6: Natural Medicinals—Ingredients & Applications

> *The art of healing comes from nature, not from the physician. Therefore, the physician must start from nature, with an open mind.*
>
> —Paracelsus

***Note:** Supporting resources for the medical and scientific facts stated in this chapter may be found at the back of the book. Readers are encouraged to check with their doctor before starting any new regime.*

Nature’s diverse flora and fauna offer a treasure trove of biologically active compounds that can support and enhance human health. Plants, fungi, mosses, and other natural elements have evolved to protect themselves from the complex array of threats that their environment contains. When utilized by humans, these same bioactive compounds can provide a vast range of benefits, and because of new trends, sources are readily available and can be easily incorporated with safety into our lives.

The information below contains a gentle dip into the science behind why these natural compounds work in the way that they do. It hopefully can give you a better sense of how your body is being affected on a microbiological level when you start interacting with them. I am also choosing to include information that goes beyond the laser focus on

inflammation, so that you can get a wider, more holistic understanding of these medicinal allies and how they can be incorporated into your game plan. My hope is that it can help you choose what may be your own best options to explore, possibly getting multiple benefits that align with your needs from a single source.

Of course, this is just a partial list, but it provides an array of options that can each be utilized in different forms to help fight not just inflammation in the body, but other issues too.

Choose something that suits your lifestyle and specific needs, and you will add a valuable member to your team whose skill set was passed down and perfected literally through evolution.

Fungal Allies

Fungi are extraordinary organisms that have been recognized for their health benefits for centuries. They are considered health powerhouses due to their potent antioxidant properties and ability to modulate the immune system. Modern science is still uncovering their full potential as medicine.

In the quest to fight inflammation, some of these miracle fungi stand out.

Chaga Mushroom

Common Name: Chaga.

Scientific Name: *Inonotus obliquus.*

Description: Chaga is a fungus that primarily grows on birch trees in cold climates. It appears as a black, charred-looking mass on the outside of the tree, often resembling

burnt charcoal or cracked bark. Inside, it has a rusty orange color.

Uses: Chaga has been traditionally used for diabetes, cardiovascular disorders, and tuberculosis. It is also valued for its potential antitumor, anti-inflammatory, antiallergic, antiviral, antiaging, and antioxidant properties.

Anti-inflammatory Properties: Inotodiol, a lanostane-type triterpenoid found in chaga, exhibits significant anti-inflammatory effects. It helps reduce inflammation by inhibiting inflammatory cytokines and enzymes involved in the inflammatory response.

Dosage and Instructions to Use:

- **Tea:** Brew 1–2 teaspoons of dried chaga chunks or powder in hot water for 10–15 minutes. Drink 1–3 cups daily. The tea has a very mild, earthy flavor that is not at all unpleasant.
    - As an additional option, chaga tea can easily be added to coffee, either by French press or drip method. Simply add ground up chaga to your water as it boils (boil for a minimum of 10 mins to properly extract the medicinal properties), then pour the resulting tea over coffee grounds as you normally would. You cannot taste the chaga in the coffee, but you get the medicinal benefits!
- **Tincture:** Use a double extraction tincture to obtain both water-soluble and alcohol-soluble properties. Take 1–2 droppers full (approximately 30–60 drops) 1–3 times per day.
- **Powder:** Add 1–2 grams of chaga powder to smoothies, soups, or other foods daily.

Lion's Mane Mushroom

Common Name: Lion's mane.

Scientific Name: *Hericium erinaceus.*

Description: Lion's mane mushrooms are easily recognizable by their long, white, shaggy drooping spines that resemble a mane. They grow on hardwood trees and logs, particularly during late summer and fall.

Uses: Lion's mane is used for its potential to promote cognitive function and nerve regeneration. It contains hericenones and erinacines, compounds that stimulate the production of nerve growth factor (NGF).

Anti-inflammatory Properties: Lion's mane helps reduce inflammation particularly in the brain and nervous system, potentially mitigating neurodegenerative conditions.

Dosage and Instructions to Use:

- **Capsules:** Take 1–3 capsules (250–500 mg each) daily with meals.
- **Powder:** Add 1–2 teaspoons of lion's mane powder to coffee, tea, or smoothies daily.
- **Tincture:** Use a single or double extraction tincture, taking 1–2 droppers full (approximately 30–60 drops) 1–3 times per day.

Reishi Mushroom

Common Name: Reishi.

Scientific Name: *Ganoderma lucidum.*

Description: Reishi mushrooms are kidney-shaped with a reddish-brown, varnished appearance. They typically grow

at the base of deciduous trees, particularly maples. Note that reishi mushrooms have a lookalike relative that grows on hemlock trees, appropriately called “hemlock varnish polypore”, that does not contain the same medicinal potency as *Ganoderma lucidum*.

Uses: Known as the “mushroom of immortality”, reishi supports immune function, promotes sleep, and acts as an adaptogen to help the body cope with stress. It also reduces hormonal imbalance and fatigue and helps fight against leaky gut.

Anti-inflammatory Properties: Reishi’s triterpenoids and polysaccharides exhibit potent anti-inflammatory effects. They inhibit oxidative reactions, reduce oxidative stress-induced damage and suppress the release of inflammatory cytokines.

Dosage and Instructions to Use:

- **Tea:** Use 1–2 teaspoons of dried reishi mushroom in hot water, simmer for 20–30 minutes, and drink 1–2 cups daily. reishi tea is actually less effective than tinctures/powders when being used as an anti-inflammatory.
- **Tincture:** A double extraction tincture is recommended to capture both water-soluble and alcohol-soluble properties. Take 1–2 droppers full (approximately 30–60 drops) 1–3 times per day.
- **Powder:** Add 1–2 grams of reishi powder to smoothies, soups, or other foods daily.

Turkey Tail Mushroom

Common Name: Turkey tail.

Scientific Name: *Trametes versicolor.*

Description: Turkey tail mushrooms are fan-shaped with concentric rings of varying colors (resembling the tail of a turkey). They typically grow on decaying logs and stumps in clusters that grow horizontally to the ground.

Uses: Turkey tail is known for its immune-boosting properties and is used to support overall health and combat various infections.

Anti-inflammatory Properties: Turkey tail contains polysaccharopeptide (PSP) and polysaccharide-K (PSK) that help modulate the immune system and reduce inflammation.

Dosage and Instructions to Use:

- **Tea:** Brew 1–2 teaspoons of dried turkey tail in hot water for 10–15 minutes. Drink 1–2 eight-ounce glasses per day.
- **Tincture:** Use a double extraction tincture, taking 1–2 droppers full (approximately 30–60 drops) 1–3 times per day.
- **Capsules:** Take 1–3 capsules (500 mg each) daily with meals and a glass of water.

Some Safety Precautions

Using mushrooms for health benefits can be highly effective, but it is essential to follow safety precautions to avoid adverse effects.

These are some key considerations:

- **Consult Healthcare Providers:** Speak with a healthcare professional before starting mushroom supplements, especially if you have underlying health conditions or are taking other medications.

Certain mushrooms can interact with medications, including anticoagulants, immunosuppressants, and blood pressure medications.

- **Specific Medical Conditions:** People with autoimmune diseases should exercise caution with immune-boosting mushrooms like reishi and turkey tail, as they can potentially exacerbate their condition.
- **Use Wild Mushrooms with Caution:** Do not consume wild mushrooms that have not been identified by an expert in mushroom identification. Many edible mushrooms have toxic look-alikes that can cause severe poisoning or death.
- **Purchase from Reputable Sources:** Buy mushrooms and mushroom supplements from trusted suppliers to ensure quality and safety.
- **Start with Small Dosages:** If you are trying a new type of mushroom, start with a small amount to ensure you do not have a sensitivity or allergic reaction.
- **Monitor for Reactions:** Watch for signs of allergic reactions, such as itching, swelling, hives, or difficulty breathing, and discontinue use immediately if any occur.
- **Follow Recommended Dosages:** Adhere to the recommended dosages provided by manufacturers or healthcare providers to avoid potential toxicity or adverse effects.
- **Check for Contaminants:** Ensure mushrooms and supplements are free from contaminants such as heavy metals, pesticides, and pathogens. Look for third-party testing or certification on products.
- **Shelf Life and Storage:** Store mushrooms and supplements in a cool, dry place to prevent mold growth and spoilage. Pay attention to expiration

dates and discard products that are past their shelf life.

- **Pregnancy and Breastfeeding:** Pregnant and breastfeeding women should consult with healthcare providers before using mushroom supplements, as safety data may be limited for certain types.
- **Children:** Use caution when giving mushrooms or mushroom supplements to children and always seek guidance from a pediatrician or healthcare provider.

Mushrooms can offer numerous health benefits, but it is crucial to approach their use with caution. Proper identification, sourcing, dosage adherence, and consultation with healthcare professionals are vital steps to ensure safe consumption.

Herbal Allies

> *The chemicals contained in plants and herbs are the chemicals our bodies seek and need to stay healthy. Over eons of time, plants developed these chemicals as a means of protecting themselves from insects, fungi, bacteria, viruses, and animals. When we ingest those plant chemicals, they offer us some of that same strong protection.*
>
> —Lee Sturdivant
> *The Bootstrap Guide to Medicinal Herbs in the Garden, Field and Marketplace*

Scientific discovery has helped explain ancient plant medicine, proving so many plants to be adept players in the healing process of the human body. On a molecular level,

we can see how the essences of these plants line up perfectly with the needs of our cells and body systems.

There are a great number of herbal allies you can enlist in the fight against inflammation. It all comes down to preferences and what is most available/accessible to you.

When it comes to dried herbs and herbal supplements, it is essential to consider several factors to ensure you're getting high-quality, safe, and effective products.

If you are skilled in horticulture and can grow your own herbs, you have the benefit of knowing exactly how the plant was grown and harvested. You can be sure that it is grown organically and processed/prepared in the proper way. Growing your own herbs can be quite cost effective. Even if you’re a beginner, or not a gardener at all, it may be very worthwhile to try cultivating one or two choice herbs, even in containers, that you can incorporate into your inflammation-fighting regimen. There is a lot of enjoyment to be had by interacting with plants, especially ones that you intend to use as medicine. Watching these plants grow can deepen your connection to the source of your healing. Don’t underestimate the ability to create your own herbal remedies. Do some deeper exploration of the list of herbs below and find what may be the best choices that align with your game plan of living a lifestyle that combats chronic inflammation. Gardening itself is therapeutic, and can help relieve stress, so it’s a win-win.

That said, even if you do grow and harvest some of your own herbs, for the most part it is apothecaries and health food stores that will be your most consistent and reliable sources for herbs and herbal supplements.

Preliminary Tips

Read this section carefully for vital preliminary tips.

Each one will help guide you towards a well-informed decision when purchasing herbs for medicinal use.

General Top Tips for Herb Procurement:

- **Research the Supplier:** Look for reputable suppliers with a good track record. Check reviews, testimonials, and ratings from other customers. Ensure the supplier has a history of providing quality herbal products.
- **Certifications and Standards:** Check if the supplier follows Good Manufacturing Practices (GMP) and has relevant certifications (e.g., USDA Organic, Non-GMO Project Verified, ISO certifications). These indicate adherence to quality and safety standards.
- **Ingredients and Sourcing:** Verify where and how the herbs are sourced. Ethical sourcing practices ensure sustainability and quality. Ensure the supplier provides information on the origin, cultivation methods, and any certifications related to the herbs.
- **Purity and Quality Control:** Look for products that undergo rigorous testing for purity, potency, and contaminants (e.g., heavy metals, pesticides). Suppliers should provide Certificates of Analysis (COA) from third-party labs to verify product quality.
- **Transparency and Information:** Suppliers should provide clear and comprehensive product information, including ingredient lists, dosage instructions, potential side effects, and

contraindications. Transparency in sourcing and manufacturing processes is crucial.
- **Packaging and Storage:** Ensure products are packaged in appropriate containers to maintain freshness and potency. Check for proper labeling, including expiration dates, batch numbers, and storage instructions.

We all react differently to the different remedies, which is why tracking can be important, so you can see what works best for you. While you decide which herbs to try first, it helps to know that not all herbals rate the same on an anti-inflammatory scale.

Stronger Anti-Inflammatory Herbs:

- **Turmeric** (*Curcuma longa*): High curcumin content, excellent for systemic inflammation and joint pain.
- **Boswellia** (*Boswellia serrata*): Potent for arthritis, gut inflammation, and respiratory health.
- **Ginger** (*Zingiber officinale*): Powerful for reducing inflammation, especially in joints and digestion.
- **Devil's Claw** (*Harpagophytum procumbens*): Strong anti-inflammatory effects, particularly for joint and muscle pain.

Moderate Anti-Inflammatory Herbs:

- **Gotu Kola** (*Centella asiatica*): Antioxidant-rich, good for skin and neurological inflammation.
- **Ashwagandha** (*Withania somnifera)*: Adaptogenic, reduces cortisol-related inflammation.
- **Rosemary** (*Rosmarinus officinalis*): Mild anti-inflammatory, good for digestion and cognitive health.

- **Irish Moss** (*Chondrus crispus*): Helps soothe irritated tissues, particularly in the gut, lungs, and skin.

Mild Anti-Inflammatory Herbs:

- **Chamomile** (*Matricaria chamomilla*): Gentle anti-inflammatory, good for gut and skin irritation.
- **Marshmallow Root** (*Althaea officinalis*): Primarily mucilaginous, soothes internal inflammation.
- **Slippery Elm** (*Ulmus rubra*): Coats and protects mucous membranes, but not a systemic anti-inflammatory.

Inclusive of those above, see below for a partial catalog of plants, shrubs and trees that can be utilized easily as anti-inflammatories.

American Skullcap

Common Name: American skullcap, skullcap.

Scientific Name: *Scutellaria lateriflora.*

Similar Yet Distinct From: Chinese skullcap/Baikal skullcap (*Scutellaria baicalensis).*

How to Identify: A perennial herb that is a member of the mint family, with tiny blue flowers and toothed leaves.

Uses: American skullcap is a relaxant that calms the nervous system, helping with insomnia, anxiety, nervous tension, and convulsions. It is an antioxidant, anti-viral, antibacterial, immunomodulatory, and antitumor (anti-metastatic and anti-angiogenic) herb. It supports heart health and is neuroprotective, helping diminish anxiety and depression and combatting neurodegenerative diseases such as Parkinson’s and Alzheimer’s disease. It also is

antipyretic (fever-reducing), analgesic (pain-relieving), antiallergic, and antimicrobial.

Anti-inflammatory Properties: Contains the flavonoids scutellarin, baicalein, and baicalin. Baicalein and baicalin contribute primarily to skullcap's bioactive profile.

Dosage and Instructions to Use: American skullcap leaves are used in the production of teas, extracts and capsules. Use fresh or dried leaves in teas or tinctures. Drink 1–2 cups of tea daily. Tinctures should be used as directed on product labels.

***Caution:** Avoid use of skullcap by people with conditions of the liver. It can have reactions with blood thinners and cholesterol lowering medications. There is also not enough information about the safety of this herb to administer to children or pregnant or breastfeeding women.

Arnica

Common Name: Arnica.

Scientific Name: *Arnica montana.*

Description: Part of the sunflower/daisy family, *Asteraceae*, Arnica is a perennial herb with bright yellow, daisy-like flowers and hairy stems. It typically grows in mountainous regions and can be identified by its basal rosette of leaves.

Uses: Analgesic, anti-microbial, antirheumatic, antiarthritic, and antineoplastic (inhibits cancer cell growth). Works to reduce joint and muscle stiffness/soreness. Increases blood flow, reduces bruising, and promotes healing.

Anti-inflammatory Properties: Contains a sesquiterpene lactone called helenalin, that is particularly anti-inflammatory but also toxic, so it is utilized in dilution.

Dosage and Instructions to Use: Used *externall*y in salves, creams, infused oils, or herbal baths. Use in accordance with the product label.

***Caution:** Avoid internal use as it can be toxic, though arnica can be safely used in homeopathic form, which is sublingual (under the tongue).

Ashwagandha

Common Name: Ashwagandha.

Scientific Name: *Withania somnifera*.

Description: A member of the nightshade *Solanacea* family, ashwagandha is a small shrub with oval leaves, yellow flowers, and red fruit. The large carrot-like roots are typically harvested in the fall after the first frost. The leaves, which grow out radially from the center stem, are also harvested for medicinal use.

Uses: This herb has been widely used for centuries in Ayurvedic medicine in India. It is an adaptogen and calmative. It is a mood stabilizer, reduces adrenal fatigue and boosts the immune system. It works similarly to antidepressant drugs without the side effects often experienced with those types of drugs. It increases white blood cell count which helps cancer patients who are going through chemotherapy or radiation to fight off infection.

This herb also increases immunoglobulin production in the immune system. Immunoglobulins are made from two kinds of white blood cells and identify and bind to foreign antigens and then destroy them. They are responsible for fighting viruses and bacteria. Ashwagandha naturally lowers cortisol, a stress hormone that can get out of control if not kept in check through stress reduction practices. Ashwagandha has antioxidants and natural steroids which aid in the function of

protecting the brain and helping overall brain health. There is research that ashwagandha can be utilized in the prevention and cure of brain degeneration and the diseases associated with that.

Anti-inflammatory Properties: Contains withanolides (anti-inflammatory compounds). Ashwagandha also inhibits expressions of pro-inflammatory cytokines, TNF-α and IL-1β, and inhibits superoxide production.

Dosage and Instructions to Use: Take ashwagandha in gummies, capsule form or as a tincture or tea. Start with 300–500 mg per day.

***Caution:** As a member of the nightshade family, Ashwagandha should be used in moderation, in intervals for short periods of time. Studies have shown it to have positive effects after two weeks, but long-term constant use should be avoided or done under supervision of a health practitioner.

Balsam Poplar

Common Name: Balsam poplar, balm of Gilead, cottonwood.

Scientific Name: *Populus balsamifera.*

How to Identify: A tall, graceful, moisture-loving tree, growing up to 100 feet tall, with sticky, fragrant buds and shiny, dark, heart-shaped leaves with a pale green underside. The aromatic buds are typically harvested in late winter or early spring, while dormant. Harvest after a winter windstorm when the twigs with the biggest buds at the top of the tree have fallen to the ground below. Inner bark is harvested off small branches any time of year.

Uses: Blood purifier, antiseptic, antimicrobial, antioxidant. Used as pulmonary support and to reduce fevers, gout, stomach and kidney ailments. Especially good for rheumatism (diseases marked by inflammation and pain in the joints, muscles, or fibrous tissue).

Anti-inflammatory Properties: *Anti*-inflammatory compounds found in Poplar include salicin, gallic acid, and salicortin.

Dosage and Instructions to Use: Use flowers, resinous buds and inner bark internally as tea or tincture. Poplar bud infused oil can be used topically. There are herbal suppliers who make products that can be purchased for use.

Bilberry

Common Name: Bilberry.

Scientific Name: *Vaccinium myrtillus.*

How to Identify: A low-growing shrub with small, round, blue-black berries and small, ovate leaves.

Uses: Hypoglycemic, anti-carcinogenic and antioxidant. Useful in treating varicose veins, and hemorrhoids. Helps reduce eye strain and improves vision when used for 3 months or more. Helps with metabolic disorders.

Anti-inflammatory Properties: Bilberries contain 10% anthocyanins, which are anti-inflammatory compounds.

Dosage and Instructions to Use: Take one capsule or one dropperful of tincture three times daily. Berries can be eaten raw or made into jam or juice; leaves can be used in tea infusions.

Birch

Common Name: Birch.

Scientific Name: *Betula spp.*

How to Identify: A deciduous tree with white, papery bark and triangular, toothed leaves.

Uses: Hepatoprotective, anti-hypertensive, antiulcerogenic and anti-tumor. Birch bark tea has been used traditionally to help with muscle and joint pain relief and as a gentle sedative.

Anti-inflammatory Properties: The active ingredient salicin or methyl salicylate is like aspirin. It has pentacyclic triterpenoids, which are biologically active phytochemicals that are anti-inflammatory. The inner bark of the birch tree contains botulin (see also the *chaga mushroom*, which grows on birch). Betulinic acid inhibits malignant melanoma as well as cancer of the lung and liver.

Dosage and Instructions to Use: The boiled birch leaves, twigs and leaf buds create a medicinal decoction that can be used internally or externally for inflammation.

Borage

Common Name: Borage.

Scientific Name: *Borago officinalis.*

How to Identify: Originally from the Mediterranean region, and a member of the *Boraginaceae* family, borage is an annual herb with hairy leaves that grows 2–3 feet tall. Its bristly, star-shaped lavender-blue flowers have a slight cucumber flavor.

Uses: Contains high amounts of potassium. Blood purifier, diuretic and sedative. An emollient, borage helps treat skin disorders. Fights bronchitis, colds, fever and cough (demulcent). Used to reduce the symptoms of rheumatoid arthritis, premenstrual syndrome, diabetes, ADHD, acute respiratory distress syndrome (ARDS), asthma, and is used preventatively for heart disease and stroke. Helps even to sway depression and alcoholism. It fights against adrenal insufficiency, prevents inflammation of the lungs, and can be used to promote sweating (diaphoretic).

Anti-inflammatory Properties: The seed oil contains gamma linolenic acid (GLA) which is an anti-inflammatory fatty acid. Contains high levels of omega-6 fatty acids, which are anti-inflammatory.

Dosage and Instructions to Use: Seed oil supplements are used externally or internally as directed by the manufacturer. Dried leaves are used in tea infusions for internal use. Fresh plant poultice is used for acute external inflammation. Fresh borage flowers are used as a culinary herb in salads or can be candied. They can be shaken into a cooling beverage with water, lemon juice and cider. The flowers have also been added to brandy or wine. This herb is one not to be taken internally at high dosages or for long term use.

Boswellia

Common Name: Boswellia, Indian frankincense.

Scientific Name: *Boswellia serrata*.

How to Identify: A medium-sized deciduous tree from the *Burseraceae* family, boswellia is native to dry, mountainous regions of India, North Africa, and the Middle East. It

produces a fragrant, resinous gum that solidifies into amber-colored chunks when harvested.

Uses: Strong anti-inflammatory, especially for joint pain, arthritis, and autoimmune conditions. Supports respiratory health, reduces gut inflammation (useful in colitis and IBS), and may improve brain function. Also used in traditional Ayurvedic medicine for wound healing and general immune support.

Anti-inflammatory Properties: Rich in boswellic acids, which inhibit 5-lipoxygenase (5-LOX), a key enzyme involved in inflammation. This makes boswellia particularly effective for chronic inflammatory conditions like osteoarthritis, rheumatoid arthritis, and inflammatory bowel disease (IBD).

Dosage and Instructions to Use: Typically taken as a resin extract in capsules, powders, or tinctures. A standard dose is 300–500 mg of extract (65% boswellic acids) 1–3 times daily. Can also be used as an essential oil for topical application on inflamed joints. Best taken with food for better absorption.

***Caution:** May interact with blood thinners and nonsteroidal anti-inflammatory drugs (NSAIDs). Avoid use during pregnancy or if suffering from severe gastrointestinal disorders without medical advice.

Burdock

> *Nature has not produced for us many herbs whose food and medicinal value equal this one (burdock)... very few if any herbs are more virtuous or possess more curative powers.*
>
> —Dr. Edward E. Shook
> *Advanced Treatise in Herbology*

Common Name: Burdock, happy major, beggar’s buttons.

Scientific Name: *Arctium lappa/Arctium minus.*

How to Identify: A stout biennial plant with large, wavy hairy leaves and purple flower heads with hooked bristles. Many of us know them as burs, the big Velcro-like seed pods the size of small grapes, that stick in a dog’s hair while out running around old buildings or roadsides and are laborious to extract. The root is a long, dark, thin taproot, about one inch thick, growing into the ground up to two feet deep. The root is harvested in fall of the first year of growth and is cut lengthwise to dry.

Uses: A strong blood purifier. Roots are high in vitamin C. Helps cleanse and heal the liver. The inner pith of the burr has been used medicinally as a tea for asthma.

Anti-inflammatory Properties: Burdock contains inulin and several types of lignans. Inulin slows the digestion of carbohydrates and prevents sugar spikes. Some lignans inhibit the production of toxic nitric oxide (NO), a compound that is involved in chronic inflammation and inflammation-related diseases, and other lignans inhibit tumor necrosis factor-alpha (TNF-a), interleukin-6 (IL-6) which trigger inflammatory response.

Dosage and Instructions to Use: Root, herb, and seed are all used medicinally; however, the root is what is most often used for medicinal purposes in teas, tinctures, and capsules.

For a strong potent medicinal tea, boil 4 ounces of dried root in 3 pints of water for 30 minutes and refrigerate. Drink three cups per day, the flavor can be intense but is pure medicine. If the flavor is not palatable, capsules can be taken 1–3 a day depending on potency, (follow individual dosages on your product label).

Liquid extracts and dried root powders are other supplement options. Young leaves and leaf stalks, flower stalks and roots are all edible. Burdock root can be prepared as a culinary ingredient in much the same way as other roots, boiled or steamed until soft. Be sure to use the general rule of thumb and use caution when considering any long-term use of this herb.

Calendula

Common Name: Calendula, pot marigold.

Scientific Name: *Calendula officinalis.*

How to Identify: A member of the *Asteraceae* family, calendula is an annual herb with bright orange or yellow daisy-like flowers that are somewhat sticky when handled. Calendula is a great backyard herb that is easy to grow and prepare. It is an annual that often reseeds itself prolifically with its curled claw shaped seeds. Flowers are harvested in the heat of the day when the water content is lowest, and the resins are the highest, and they should be immediately spread out to dry, out of the sun. Be sure to grow the ‘officinalis’ variety of this herb for proper medicinal usage.

Uses: High in vitamin A. Considered especially safe and effective for self-treatment practices treating a variety of ailments. Has long been used to treat skin conditions and minor wounds. Anti-inflammatory, anti-microbial, antiseptic, and anthelmintic. Anti-cancer, antioxidant, anti-diabetes, anti-helminthic, and hepatoprotective. Internally, it has been used to break a fever or calm menstrual cramps and to improve gut function. Calendula oil is helpful for earaches, simply applied to a cotton swab and placed in the ear.

Anti-inflammatory Properties: Contains carotenoids, flavonoids, saponins, terpenoids, alkaloids, tannins,

essential oils, sterols, mucilage, polysaccharides, triterpenoids, only a few of the categories of secondary metabolites which are believed to reduce inflammation or work as antioxidants that eliminate free radicals, and in turn help reduce chronic inflammation.

Dosage and Instructions to Use: Root, plant and flowers are all medicinal. Use tea or tincture for internal use. Make a decoction of 2 oz dried flowers in 1.5 pints of water for 10 minutes and take one tablespoon daily. Powdered calendula petals are an inexpensive substitute for saffron in the culinary realm. Calendula also has a rich history of being utilized in homeopathy. The golden orange flowers can be used in salads. For topical use, infuse dried flowers in olive or avocado oil for 6 weeks, strain, then apply to the skin. Topical creams and salves are readily available at health food stores and apothecaries.

***Caution:** Do not use calendula during pregnancy as it can potentially bring on menses. Do not use calendula in combination with blood pressure medications or sedatives.

Cat's Claw

Common Name: Cat's claw.

Scientific Name: *Uncaria tomentosa*.

How to Identify: Named for its claw-like thorns, cat's claw is a thorny vine that grows upwards of 100 feet tall.

Uses: Used by South and Central Americans for centuries to treat health problems, it is a diuretic, antioxidant, anti-arthritic, immune system stimulant. It relaxes the gastrointestinal tract and calms smooth muscle tissue, helping with stomach ulcers and dysentery. It dilates the blood vessels which can lower blood pressure. Has been used also in the treatment of arthritis.

Anti-inflammatory Properties: In vitro studies have shown that cat's claw bark extract both lessens oxidative stress and suppresses the cellular activation of NF-kappaB, a protein complex that regulates the production of pro-inflammatory cytokines.

Dosage and Instructions to Use: Bark and root extracts in either liquid or capsule form should contain 3% alkaloids and 15% phenols).

***Caution:** Use in children only under doctor's supervision. Do not use it if pregnant or nursing.

Chamomile

Common Name: Chamomile, German chamomile, Hungarian chamomile, blue chamomile, wild chamomile.

Scientific Name: *Matricaria chamomilla* (scientific synonyms include *Chamomilla recutita* and *Matricaria recutica).*

Similar Yet Distinct From: Roman chamomile (*Anthemis nobilis/Chamaemelum nobile*).

How to Identify: Belonging to the *Asteraceae* family, chamomile is an annual plant originating from Southern Europe and the Mediterranean, now grown in many temperate regions. Chamomile's leaves are small and feathery, and it produces many tiny, daisy-like flowers with a proportionally big yellow center and tiny white petals.

Uses: Chamomile is antioxidant, antibacterial, anti-microbial, anti-viral, antifungal, and anti-cancer (anti-tumor). Also an antispasmodic, it helps to relax muscles and calm nerves. It reduces sleep problems, anxiety and muscle spasms. Reduces fever and pain, including rheumatic pain. It is effective at treating ulcers and gastrointestinal

disorders. It helps protect the liver and is antiallergic and immunomodulatory. It can help reduce high blood pressure and blood sugar (it is hypoglycemic).

Anti-inflammatory Properties: The compounds in chamomile reduce the enzyme that produces nitric oxide (NO), a key player in the inflammatory response. Excessive amounts of NO are harmful and contribute to the formation of cancer cells. Water-soluble compounds in chamomile include flavonoids, coumarins, and phenolic acids. Oil soluble compounds with therapeutic value are in the form of terpenoids. The flowers contain polyphenol compounds.

Dosage and Instructions to Use: Flowers are used in the preparation of teas, extractions and distilled essential oils.

***Caution:** Chamomile should not be used by women experiencing reproductive organ ailments such as endometriosis or ovarian/uterine cancer. It can also interact with anticoagulant and non-steroidal inflammatory medications.

Chicory

Common Name: Chicory.

Scientific Name: *Cichorium intybus.*

How to Identify: A perennial plant with bright blue flowers and a deep taproot.

Uses: Helps liver detox. Anti-diabetic, anti-tumor, antioxidant, anthelmintic. Supports digestive tract, helping to prevent GI disorders. Appetite regulator. Modulates immune system.

Anti-inflammatory Properties: Reduces inflammation in rheumatoid arthritis.

Dosage and Instructions to Use: Roasted and ground roots can be prepared like coffee, as a coffee substitute. Powdered roots used in baking/pastry making. For liver detox, whole plant tincture is best. Use herbal infusion for external use as a compress.

Cinnamon

Common Name: Cinnamon, Ceylon cinnamon.

Scientific Name: *Cinnamomum zeylanicum.*

Viable Alternatives: Chinese cinnamon (*Cinnamomum cassia*).

How to Identify: The inner bark of a tropical evergreen tree.

Uses: Antioxidant, digestive aid, reduces nausea, protects liver and heart, supports brain health and benefits the nervous system. Helps relieve cramps and reduces nausea, especially during pregnancy. Anti-colitis, anti-arthritic, anti-diabetic.

Anti-inflammatory Properties: Contains cinnamaldehyde, an anti-inflammatory phyto-complex. Also has antioxidants that inhibit brain protein buildup.

Dosage and Instructions to Use: The bark and essential oil (e.g. *oil of cassia*) are used. For tea, make herbal decoction and drink one cup three times daily. Cinnamon powder can also be mixed with raw honey (one part cinnamon to two parts honey) and ingested by the spoonful or added to hot water or tea.

Cinnamon Syrup Recipe:

- Start with a high-quality oil of cinnamon.
- Dissolve 2 tsp of oil of cinnamon into 4 oz of 100 proof alcohol and set to the side.
- Boil 6 oz of water in a saucepan, slowly stir in 12 ounces of brown sugar and until dissolved.
- Boil and reduce for 5 minutes.
- Allow to cool, then add the cinnamon oil mixture and stir thoroughly.
- Store in a glass jar, sealing once the mixture is completely cooled.
- **Dosage:** 1 tsp dissolved in a small amount of warm water per day.

Comfrey

Common Name: Comfrey.

Scientific Name: *Symphytum officinale*.

How to Identify: A perennial herb with large, hairy leaves and bell-shaped flowers.

Uses: For help with fractures, sprains, bruises, pulled muscles, pulled ligaments and strains. For osteoarthritis, degenerative arthritis and acute myalgia in the back. Reduces swelling in muscles and joints. Especially good for reducing pain and swelling in the ankles.

Anti-inflammatory Properties: Allantoin and the polyphenol compound rosmarinic acid. Allantoin is shown to facilitate wound healing and rosmarinic acid helps fight against the weakening of the bones.

Dosage and Instructions to Use: Use twice daily as topical compress, poultice, salve or infused oil.

***Caution:** Not to be used internally due to liver toxicity.

Dandelion

Common Name: Dandelion.

Scientific Name: *Taraxacum officinale.*

How to Identify: A common weed with bright yellow flowers and deeply toothed leaves.

Uses: Helps treat and prevent immune system diseases, arthritis, pneumonia, gastritis, colitis, tumors, liver disease and gout. Good for digestive disorders.

Anti-inflammatory Properties: Contains the prebiotic inulin (feeds probiotics in the gut), antioxidants and the bioactive triterpenoid teraxasterol. Taraxasterol is anti-carcinogenic, anti-oxidative and anti-inflammatory.

Dosage and Instructions to Use: Teas, tinctures, capsules, and culinary uses. Use fresh leaves in salads or steam like spinach. For tea, use decoction of dried roots or infusion of dried leaves. Consume 1–2 cups daily. Root can be roasted and brewed like coffee as well.

Dead Nettle

Common Name: Dead nettle, white dead nettle.

Scientific Name: *Lamium album*.

How to Identify: A low-growing herb with square stems, purple flowers, and heart-shaped leaves.

Uses: Modulates immune response and reduces histamine reaction. Shows to reduce rheumatism. Reduces cervical inflammation.

Anti-inflammatory Properties: High in flavonoids and phenolic compounds which have antioxidant, antimicrobial, and anti-inflammatory properties. Inhibits cytokine secretion, thus inhibiting inflammatory response.

Dosage and Instructions to Use: Tinctures, teas, culinary uses. Use young tops in salads or soups. Make tea infusion from dried herbs and drink 1–2 cups daily. Use tincture as directed on the bottle.

Devil's Claw

Common Name: Devil's claw.

Scientific Name: *Harpagophytum procumbens.*

How to Identify: A sprawling plant native to the Kalahari Desert and southern Africa. It has spiny seed pods that resemble claws, and its tuberous roots contain the medicinal compounds.

Uses: Potent anti-inflammatory, particularly for joint pain, arthritis, back pain, and tendonitis. Supports liver health, aids digestion, and may reduce muscle soreness.

Anti-inflammatory Properties: Rich in harpagosides, which block inflammatory pathways (COX-2 inhibition) and reduce oxidative stress. Often used as a natural alternative to NSAIDs for chronic pain conditions.

Dosage and Instructions to Use: Commonly taken as capsules, tinctures, or tea. Dosage: 600–1200 mg of standardized extract (containing 2–3% harpagosides) daily. Effects build over weeks, so consistency is key.

***Caution:** May lower blood pressure and interact with blood thinners or diabetes medication. Avoid it if you have ulcers or gallstones, as it stimulates digestive juices.

Evening Primrose

Common Name: Evening primrose.

Scientific Name: *Oenothera biennis*.

How to Identify: A biennial plant with yellow, night-blooming flowers.

Uses: Supports joint function. Reduces arthritis. Reduces gastrointestinal inflammation. Shown to help with various inflammatory conditions.

Anti-inflammatory Properties: Contains flavonoids and phenolics as well as the omega-6 fatty acid GLA (gamma-linolenic acid). GLA metabolizes into a powerful anti-inflammatory mediator that regulates immune responses and reduces inflammation. Flavonoids and phenolics are both antioxidant and anti-inflammatory.

Dosage and Instructions to Use: Medicinal oil is extracted from the seeds of this plant. Evening primrose oil (EPO) is a dietary supplement that can be purchased. Take 500–1,000 mg of EPO daily. Consult with a healthcare provider for long-term use.

Flax

Common Name: Flax.

Scientific Name: *Linum usitatissimum.*

How to Identify: An annual plant with blue flowers and glossy eye-shaped seeds.

Uses: Studies have shown that consuming flax can have significant positive effects on those who suffer from autoimmune arthritis, reducing pain and swelling in the

joints. The ALA in flax can help reduce the risks of cognitive decline and diabetes.

Anti-inflammatory Properties: Contains alpha-linolenic acid (ALA) and omega-3 fatty acids as well as anti-inflammatory flavonoids.

Dosage and Instructions to Use: Teas, dietary supplements, culinary uses. As treatment for arthritis, consume 30 grams of flaxseed per day. Keep seeds whole until use and grind before consuming. For tea, make an herbal infusion and consume it by tablespoon or cup. Always accompany ingesting flax with drinking lots of water.

Storage and Culinary Tips: Buy organic to avoid contamination. Store in the fridge, preferably in dark glass jars. Always use ground flaxseed or grind your own before use, as whole seeds may not be digested properly. Stir flaxseed meal into oatmeal, pasta, egg/tuna/chicken salad, salad dressings, smoothies or use as a topping on other dishes.

***Caution:** Because flax seeds are a slight laxative, it is not for use with Crohn’s disease, ulcerative colitis or irritable bowel syndrome (IBS).

Garlic

Common Name: Garlic.

Scientific Name: *Allium sativum.*

How to Identify: A bulbous plant with papery white skin and a strong aroma.

Uses: Immunomodulatory, anti-carcinogenic, anti-diabetic, antioxidant. Anti-inflammatory, anti-cancer, anti-obesity, neuroprotective, and digestive system protective. Shows to help heart health in that it is antiatherosclerotic (reduces

arteriosclerotic plaque/clots) so can help reduce the risk of heart attack and stroke. Shows potential as a treatment for ulcerative colitis. Has been proven to be anti-arthritic in vivo and in clinical trials (Johnson et al., 2013).

Anti-inflammatory Properties: Contains a variety of organosulfur compounds (OSCs) and phenolic compounds. The OSC allicin is particularly noted for its anti-inflammatory capabilities. The phenolic compounds help to inhibit inflammatory biomarkers nitric oxide (NO), interleukin (IL)-1, and tumor necrosis factor (TNF)-α.

Dosage and Instructions to Use: As a dietary supplement and in culinary uses. Take supplements as directed on the bottle, but typical dosage is 600–1200 mg (of aged garlic extract) daily. Use fresh organic garlic in cooking, however raw garlic shows to have higher levels of antioxidants than cooked garlic.

Ginger

Common Name: Ginger.

Scientific Name: *Zingiber officinale.*

How to Identify: A flowering plant from the *Zingiberaceae* family, ginger is a tropical perennial with tall, reed-like stems and narrow green leaves. The underground rhizome is knobby, golden-brown, and highly aromatic.

Uses: Powerful anti-inflammatory, aids digestion, relieves nausea, supports immune function, improves circulation, and helps with muscle pain. Commonly used for arthritis, migraines, menstrual cramps, and colds.

Anti-inflammatory Properties: Contains gingerols and shogaols, which inhibit pro-inflammatory cytokines and COX-2 enzymes, similar to NSAIDs but without side effects.

Particularly effective for joint pain, muscle soreness, and gut inflammation.

Dosage and Instructions to Use: Fresh, dried, or powdered ginger can be used in teas, tinctures, capsules, or as a spice. Standard dose: 1–3 grams daily. Fresh ginger tea (sliced root boiled in water) is effective for inflammation and digestion.

***Caution:** May thin the blood and interact with anticoagulants. Can cause mild digestive discomfort in high doses.

Ginseng

Common Name: Ginseng, Asian ginseng, Korean ginseng.

Scientific Name: *Panax ginseng.*

Viable Alternatives: American ginseng (*Panax quinquefolius*).

How to Identify: A member of the *Araliaceae* plant family, a slow growing perennial herb with palmate leaves, red berries, and gnarled roots. This plant is endangered, so source ethically and with care.

Uses: Antioxidant, antibacterial, antiviral, and antifungal. An adaptogen. Supports adrenal function. Improves immunity and energy. Helps combat cardiovascular diseases and diabetes mellitus. Helps to manage the effects of stress and hypertension. Shows potential in the treatment of neurological disorders (Alzheimer's [AD], Parkinson [PD] and Huntington disease).

Anti-inflammatory Properties: Contains “ginsenosides” (steroidal saponins, protopanaxadiols, and protopanaxatriols) which lower the production of the pro-inflammatory cytokines TNF-α, IL-1β, and IL-6.

Dosage and Instructions to Use: Dietary supplement. Take 200–400 mg of ginseng extract daily.

***Caution:** Consult with a healthcare provider for long-term use or if you are on medications, as it may have some drug interactions, but it is otherwise considered relatively safe.

Goldenseal

Common Name: Goldenseal.

Scientific Name: *Hydrastis canadensis.*

How to Identify: Native to Eastern USA and Canada, Goldenseal is part of the *Ranunculaceae* family of plants. A perennial herb with large, lobed leaves and small, solitary white flower with a knotted bright yellow-orange rhizome as a root.

Uses: Antiseptic and astringent. Reduces mucous membrane inflammation and helps rid the body of toxins and waste. Helps reduce hemorrhagic and digestive disorders. Has hemostatic qualities (reduces bleeding in cells). Used to treat upper respiratory infections. Studies also suggest that goldenseal can be used to help alleviate or prevent urinary tract and yeast infections due to its berberine content which is antibacterial.

Anti-inflammatory Properties: Contains antibacterial and anti-inflammatory alkaloid compounds (berberine, hydrastine and canadine).

Dosage and Instructions to Use: Teas, tinctures, herbal extracts or capsules. Use as directed on the product label. Typically, 250–500 mg capsules are taken 2–3 times daily. The powder can be used on minor wounds as a compress.

***Caution:** Avoid long-term use.

Gotu Kola

Common Name: Gotu kola, Indian pennywort.

Scientific Name: *Centella asiatica.*

How to Identify: From the family *Apiceae* (a.k.a. *Umbelliferae*), gotu koka is a creeping herb with fan-shaped leaves and small, white or pink flowers that grows in tropical regions, in wetlands.

Uses: Reduces joint inflammation. Neuroprotective, antioxidant, anticancer, wound-healing, anti-ulcer. Anti-ageing, supports skin health, increases collagen production and helps reduce eczema and psoriasis. Known to relieve anxiety and improve cognition.

Anti-inflammatory Properties: Triterpene saponins are responsible for the antioxidant effects of this plant, which in turn help reduce inflammatory response.

Dosage and Instructions to Use: Leaves and stems are used to make teas, tinctures and capsules. Take 500 mg of extract 1–2 times daily. For the skin, the powdered herb can be infused in oil and applied topically. It is used as a culinary green in places where it grows wild. Consult with a healthcare provider for specific conditions. Not to be used long-term.

***Caution:** This herb is reactive to anticonvulsant medications.

Irish Moss

Common Name: Irish moss, sea moss.

Scientific Name: *Chondrus crispus*.

How to Identify: A red algae from the family *Gigartinaceae*, Irish moss grows in cool Atlantic waters along rocky shorelines. It has a fan-like, frilly or branched appearance, ranging in color from greenish-yellow to deep red or purple. When it is dried it may fade to a pale yellowy-brown.

Uses: Supports thyroid function, boosts immunity, improves digestion, and promotes skin health. Rich in iodine, antioxidants, and essential minerals. Traditionally used for respiratory conditions, gut health, and energy enhancement. Also acts as a natural thickening agent in food.

Anti-inflammatory Properties: Contains carrageenan, which has soothing and mucilaginous properties that help coat and protect mucous membranes, reducing inflammation in the digestive and respiratory systems.

Dosage and Instructions to Use: Can be consumed raw, as a gel, in capsules, or as a tea. To make Irish moss gel, soak dried moss in water for 12–24 hours, blend until smooth, and store in the fridge. Take 1–2 tablespoons daily in smoothies, soups, or applied topically for skin hydration. Consult a healthcare provider for long-term use.

Caution: High iodine content may interfere with thyroid medication. Excess consumption can cause digestive discomfort. Avoid if allergic to seaweed or shellfish.

Lavender

Common Name: Lavender.

Scientific Name: *Lavandula angustifolia.*

How to Identify: Originally from the mountains in Southern France, lavender is a perennial herb with small, narrow,

gray-green leaves and purple flower stalks.

Uses: Antioxidant, sedative, antidepressant, spasmolytic, antifungal and antibacterial properties. Soothes the nervous system and shows potential in pain management.

Anti-inflammatory Properties: Contains phenolic compounds, types of polyphenols that are anti-inflammatory, namely the phytochemicals linalool and linalyl acetate. Studies have shown that there is greater anti-inflammatory effect if the flowers are harvested early in the flowering stage of the plant.

Dosage and Instructions to Use: The leaves of the plant are used to make medicinal tea and distilled essential oil. Lavender is mostly used topically or through aromatherapy, but perhaps the best is potentially in the form of tea. Drinking lavender tea may be most effective in that it provides both aromatherapeutic and herbal benefits and is safe to consume. For tea, make herbal infusion from fresh or dried leaves and drink 1–2 cups daily. Topically, the essential oil must be diluted with a carrier oil to be safe and effective. Possible carrier oils include jojoba oil, olive oil, almond oil and coconut oil.

***Caution:** Do not ingest lavender essential oil, or any essential oil, as it can burn the soft tissues of the mouth and throat and disrupt healthy stomach biomes. Internal use of this herb only under the guidance of an herbalist or health practitioner.

Lemon Balm

Common Name: Lemon balm.

Scientific Name: *Melissa officinalis.*

How to Identify: A member of the mint family, lemon balm is a perennial herb with lemon-scented leaves and small, white flowers.

Uses: Reduces stress-related inflammation. Sedative, and anti-arrhythmic. Has been observed to affect different viral infections, cancer types, cardiovascular diseases, neurodegenerative diseases and type 2 diabetes.

Anti-inflammatory Properties: Contains the bioactive compound rosmarinic acid (RA) and an array of highly antioxidant flavonoids. RA, in addition to being anti-inflammatory, also has strong anti-viral and antioxidant effects.

Dosage and Instructions to Use: The fresh or dried leaves are used to make teas and tinctures, and for culinary uses. For tea, make herbal infusion and drink 1–2 cups daily. As an extract, tincture can be taken daily in the normal method of two weeks on and two weeks off, starting with a lesser dose and increasing slowly. Follow product labels and consult an herbalist or health practitioner for long term use.

Marshmallow

Common Name: Marshmallow, common mallow.

Scientific Name: *Althaea officinalis.*

How to Identify: A perennial herb covered with soft hairs that grows to 6 feet tall with pale pink flowers and velvety leaves on sparse lateral branches.

Uses: Soothes mucous membranes and reduces inflammation. Historically used as the cure for a cough, due to its ability to help treat the irritation of the lining of the larynx. Antibacterial, antifungal, immuno-modulatory. Used safely as treatment of digestive issues including heartburn,

leaky gut, gastric ulcers, as well as diarrhea and constipation.

Anti-inflammatory Properties: Contains flavonoids and phenolic acids. The plant extract inhibits tumor necrosis factor synthesis/release and reduces inflammatory-signaling cytokinins and interleukin-6.

Dosage and Instructions to Use: The root is used in teas, tinctures and salves. Use fresh or dried roots in teas or tinctures. For tea, make herbal decoction and drink 1–2 cups daily or use as a throat gargle. The herbal decoction can also be used as an egg white substitute. The leaves can even be boiled then cooked in butter and eaten like other greens.

***Caution:** Marshmallow root can interact with diabetes medicines. It can also coat the stomach lining, preventing absorption of other medications.

Milk Thistle

Common Name: Milk thistle, holy thistle.

Scientific Name: *Silybum marianum.*

How to Identify: A biennial plant with purple flowers and spiny leaves with white veins.

Uses: Protects and supports liver function. Complementary therapy for those undergoing chemotherapy. Mitigates oxidative stress.

Anti-inflammatory Properties: Contains high levels of silymarin. Silymarin is anti-inflammatory, antioxidant and anti-viral that also helps prevent oxidative damage to brain cells.

Dosage and Instructions to Use: Seeds are used in dietary supplements. Take 200–400 mg of milk thistle extract daily for two weeks on/two weeks off for a few cycles.

***Caution:** Do not use long-term. Consult with a healthcare provider for specific conditions.

Mullein

Common Names: Mullein, common mullein, velvet dock.

Scientific Name: *Verbascum thapsus.*

How to Identify: A member of the snapdragon family, mullein is a biennial plant with soft, fuzzy, pale green, eye-shaped leaves which form a large rosette at ground level in the first year. In the second year of growth it sends up a tall stalk, up to 2 meters in height, with additional leaves and an elongated cluster of yellow flowers at the top.

Uses: Very high in vitamin C. Antioxidant, expectorant, antiseptic. Promotes general pulmonary health, helps to soothe the effects of cough, cold, flu, tuberculosis, pneumonia, asthma and tonsillitis. Can be smoked as a tobacco alternative in moderation and in this way is helpful with quitting/reducing tobacco smoking.

Anti-Inflammatory Properties: Contains mucilage, which soothes mucous membranes, reducing and preventing inflammation. Reduces free radicals, helping to prevent inflammation.

Dosage and Instructions to Use: Leaves are used to make teas, tinctures, oils and extracts. Can be taken internally for respiratory issues or used externally in a salve to soothe wounds. Make tea as an infusion; see instructions for that in Chapter 7, under the section titled “How to Make

Simple Herbal Recipes at Home”. Drink several cups a day for several days to relieve symptoms.

***Caution:** Mullein seeds are potentially toxic, so are avoided. Mullein should potentially not be used by those who suffer from severe kidney or liver issues.

Nettles

Common Name: Nettles, stinging nettles.

Scientific Name: *Urtica dioica.*

How to Identify: Belonging to the *Urticaceae* botanical family, nettles grow naturally throughout much of the world; in the Americas, Europe, North Africa and parts of Asia. It is a perennial herb with toothed, heart-shaped, tapering leaves and clusters of tiny, green flowers that grow up the stems at the leaf junctions. Covering the plant leaves and stems are tiny hairs that have a stinging effect upon the skin. This plant has a long history of use and has had significant attention from the science and medicine community.

Uses: Antioxidant, anti-aging, antimicrobial, diuretic, astringent, neuroprotective, hypoglycemic, anti-ulcer, and analgesic (pain reducing). Traditionally used to treat ailments such as eczema, cough, cold, asthma, anemia, jaundice, kidney problems, gout and urinary/bladder issues.

Anti-inflammatory Properties: Nettles are high in polyphenolic compounds including phenolic acids and flavonoids which are strong antioxidants. The polyphenols in the nettle plant combat oxidative stress, which is a major contributing factor to certain cancers, diabetes and cardiovascular disease. Studies have shown polyphenols inhibit the growth of cancer cells, are neuroprotective and anti-aging.

Dosage and Instructions to Use: Roots, stems, leaves and flowers are used in teas, extracts and culinary uses and urtication (external stinging). Oil extracts (lipophilic extracts) rather than the traditional alcohol/water solution tinctures, have shown to be superior in terms of inflammatory effect. For tea, make an infusion and drink 1–2 cups daily. Use fresh leaves in culinary dishes, steamed on their own or added to soups, pasta, egg and meat dishes, baked food, breads and cookies. For inflammation it has been shown that the purposeful stinging of the skin with the plant hairs works directly upon inflamed tissues.

Rosemary

Common Name: Rosemary.

Scientific Name: *Rosmarinus officinalis.*

How to Identify: Native to the Mediterranean region, rosemary is a small aromatic evergreen shrub belonging to the *Lamiaceae* family, with upright stems, short, needle-like leaves and small blue flowers.

Uses: Antimicrobial, antioxidant, antidiabetic, anti-viral, hypoglycemic, antiatherogenic, antihypertensive, hypocholesterolemic, and anti-neurodegenerative.

Anti-inflammatory Properties: Rosemary contains antioxidant polyphenols, phenolic acids, flavonoids, and diterpenoids. The polyphenolic compounds mainly include rosmarinic acid, carnosic acid and carnosol, which show to have insulin-like effects on blood sugar, and strong antiviral, antioxidant and anti-inflammatory properties.

Dosage and Instructions to Use: Rosemary leaves are utilized for essential oil, extracts, teas and culinary uses. Extracts include tincture and oil infusions for both internal and external use. Use fresh or dried leaves in teas or

culinary dishes. Drink 1–2 cups of tea infusion daily. Tinctures should be used as directed on product labels.

***Caution:** May interact with blood thinners and high blood pressure medications as well as diuretics and lithium.

Slippery Elm

Common Name: Slippery elm.

Scientific Name: *Ulmus rubra.*

How to Identify: A medium-sized tree from the *Ulmaceae* family, native to North America. The inner bark is soft, fibrous, and produces a slippery, mucilaginous texture when mixed with water.

Uses: Soothes inflammation in the digestive tract, respiratory system, and urinary tract. Used for acid reflux, ulcers, IBS, sore throats, and coughs. Promotes skin healing when applied topically.

Anti-inflammatory Properties: The mucilage in slippery elm coats and protects irritated tissues, reducing inflammation without directly altering immune responses. Best for mucosal inflammation (gut, throat, lungs, bladder) rather than systemic inflammation.

Dosage and Instructions to Use: Typically used as a tea, lozenge, or powder mixed with water. 1–2 teaspoons of powdered bark in warm water, 1–3 times daily. Can be combined with marshmallow root for stronger soothing effects.

Caution: May interfere with medication absorption due to its coating effect on the stomach. Best taken away from other supplements or medicines.

St. John's Wort

Common Name: St. John's wort.

Scientific Name: *Hypericum perforatum.*

How to Identify: A member of the *Hypericaceae* family, St. John's wort is a perennial plant that grows throughout many of the world's temperate regions, thriving easily in poor soils. Freely branching shrubby herbs with smooth, oblong, leaves and clusters of five-petaled yellow flowers at the tips of mature stems. When crushed, the flowers produce a red pigment.

Uses: St. John's wort (SJW) has been used medicinally for more than 2,000 years. It is antioxidant and neuroprotective and was historically used to treat insomnia, depression and anxiety. It has been used as a wound healing agent. Studies have shown it to be antibacterial and antiviral, having effects upon influenza, herpes and HIV. In the treatment of cancer, it has been shown to inhibit cell growth of cells derived from melanoma, sarcoma, carcinoma, and leukemia tissues, for instance.

Anti-inflammatory Properties: The main bioactive compounds are hypericin and hyperforin. Other beneficial compounds include the flavonoids rutin, quercetin, and kaempferol. SJW inhibits pro-inflammatory genes like cyclooxygenase-2, interleukin-6, and inducible nitric-oxide synthase (iNOS), which plays a critical role in chronic inflammatory diseases.

Dosage and Instructions to Use: Teas, tinctures, capsules. Follow product dosage instructions. Typically, 300–1800 mg/day. Consult with a healthcare provider for specific conditions.

***Caution:** Drug interactions can happen when combined with SJW, so if you take medications, it may not be the herb for you. The potency of medications can be either increased to a toxic level by adding SJW or can potentially be lowered or canceled out in combination. Confer with your healthcare professional about combining SJW with any other medications.

Turmeric

Common Name: Turmeric.

Scientific Name: *Curcuma longa.*

How to Identify: A member of the ginger family, *Zingiberaceae*, turmeric is a tropical plant with large, lance-shaped leaves and yellow-orange rhizomes.

Uses: Protects heart, liver and brain and lowers cholesterol and blood pressure. Can help prevent clotting of the blood. Other bioactivities include antioxidant, diuretic, anticancer, antidiabetic, anti-diarrheal, antirheumatic, antimicrobial, antiviral and anti-venomous and carminative.

Anti-inflammatory Properties: The polyphenol curcumin is attributed to the healthful effects of the turmeric plant. The issue with this compound is that it does not absorb into the body without an “enhancing agent”, however there is a compound in black pepper that, when combined with curcumin, increases the bioavailability of the compound by 2,000%.

Dosage and Instructions to Use: Roots (rhizomes) are used in teas, tinctures and culinary uses. For tea, boil 1 tbsp of dried rhizome with a pinch of black pepper, at a rolling boil in one quart water for 10 minutes. Drink 1–2 cups daily. For capsules, take 500–1,000 mg daily and combine with

black pepper consumption, or get a product that also contains the pepper in the proper ratio.

Valerian

Common Name: Valerian.

Scientific Name: *Valeriana officinalis.*

How to Identify: A perennial herb growing up to two feet tall with dark green pointed leaves with hairy undersides. It has small, white or pink flowers and a strong-smelling cluster of roots.

Uses: Mild sedative, nervine, antispasmodic, analgesic (pain reducing). Used to help with insomnia, simultaneously decreasing time needed to fall asleep while also improving sleep quality.

Anti-inflammatory Properties: Flavonoid compounds, prostaglandins and cyclooxygenase enzymes all contribute to the anti-inflammatory effects of this herb.

Dosage and Instructions to Use: Use fresh or dried roots in teas. Drink 1–2 cups daily. Tinctures take 5–10 drops per day or as directed on the bottle. For capsules, take 300–600 mg daily.

***Caution:** Not to be used in combination with other sedative medications, anticonvulsants, benzodiazepines, tricyclic antidepressants or with alcohol.

Chapter 7: Natural Medicinals—Remedies, Oils, & More

***Note:** As with the previous chapter, supporting resources for the medical and scientific facts stated in this chapter may be found at the back of the book.*

In the world of herbs for inflammation, discovering what works best for you is a process that can derive much joy.

Maybe you learn to harvest burdock from the wild and get the sense of satisfaction that act can provide. Maybe you use that herb just once or twice a year for a period of two weeks, as a blood purifying detox. Maybe you buy some nettles in tea bags and sip a cup once a week for a couple months, or you start taking turmeric capsules for intervals of time.

Chances are, if you're human, incorporating herbal remedies into your life in a small way can have positive effects, whether you see those effects distinctly or not. The effectiveness of preventative medicine is hard to prove but when, over time, disease does not happen, it can certainly be felt and appreciated.

With that said, the enjoyment experienced by making herbal remedies for one's own use is not something that can be quantified. Learning to tend to some daily ailments with herbs, and then also receiving the anti-inflammatory benefits of those herbs, when infused into a lifestyle over time, can have significant positive impact. Interacting with

natural medicinals helps to keep the wisdom of these plants relevant in our society and world.

How to Make Simple Herbal Recipes At Home

When creating your own herbal teas and remedies, there are different methods to choose from that cater to different situations.

Let’s cover the general guidelines for each brewing process.

Preparing Infusions

Infusions are made from soft plant parts such as flowers, leaves, or soft stems.

Ingredients:

- 1 tablespoon dried herbs or 1/3 of a cup of fresh herbs.
- 1 cup of water.

Instructions:

1. Boil water in a kettle or pot.
2. Place the herbs in a tea infuser or loose into a teapot.
3. Pour the boiling water over the herbs.
4. Cover and let steep for 10 minutes.
5. Strain the tea into a cup.
6. Optionally, add honey or lemon to taste.
7. Enjoy!

Preparing Decoctions

Decoctions are made from hardened herbal parts, such as roots, bark, or seeds.

Ingredients:

- 2 tablespoons dried herbs or ½ a cup of fresh herbs.
- 1 pint of water.

Instructions:

1. Pour water and herbs into a pot.
2. Bring the mixture to a boil.
3. Boil for 10 minutes.
4. Strain the tea into a cup.
5. Optionally, add honey or lemon to taste.
6. Enjoy your herbal decoction!

Preparing Tinctures

Ingredients:

- Fresh or dry herbs (e.g., self-heal, nettles, burdock).
- 100-proof alcohol (such as vodka or brandy).

Instructions:

1. Roughly chop or grind the fresh herbs.
2. Place the herbs in a glass jar and lightly pack them down to fill the jar.
3. Pour enough alcohol over the herbs to cover them completely.

4. Wipe the rim of the jar dry and seal the jar tightly with a lid and shake the jar.
5. Label the jar clearly with ingredients and the date.
6. Store in a cool, dark place for 6–8 weeks, shaking it often.
7. After 6–8 weeks, strain the liquid through cheesecloth or a fine mesh strainer into a clean glass bottle.
8. Label the tincture with the herb name, alcohol used, and date of preparation.
9. Store the tincture away from sunlight.

Preparing Herbal Oil Infusions

Ingredients:

- Dried herbs.
- Oil of your choice (e.g., olive, grapeseed, avocado).

Instructions:

1. Add coarsely chopped dry herbs to a glass quart or pint jar. Fill halfway.
2. Pour oil over the herbs to the top of the jar, leaving very little room at the top.
3. Be sure the rim of the jar is dry and clean and cover with the lid and tighten.
4. Shake the contents of the jar vigorously.
5. Place the jar in a cool dark place for 6–8 weeks, shaking often.
6. After 6–8 weeks, strain the oil through cheesecloth or a fine mesh strainer into a clean glass bottle.
7. Label the tincture with the herb name, oil used, and date of preparation.
8. Store the oil infusion away from sunlight.

Preparing Herbal Salves

You have the option of either using distilled aromatherapy oils or oil infusions.

Ingredients:

- 1 cup of herb-infused carrier oil (e.g., calendula, comfrey, plantain herb in olive oil, avocado oil, sunflower oil, safflower oil, grapeseed oil or other).
- 1/4 cup of beeswax pellets or grated beeswax.
- **Optional:** A few drops of essential oils (e.g., lavender, rosemary).

Instructions:

1. Prepare herb-infused oil by the above (recommended) method. If necessary, you can perform a faster heat-infusion by heating dried herbs in the carrier oil over very low heat for several hours, then straining out the herbs once infused.
2. In a double boiler, gently heat the herb-infused oil and beeswax together until the beeswax melts completely.
3. Remove from heat and stir in optional essential oils, if using.
4. Quickly pour the mixture into clean, dry jars or tins before it solidifies.
5. Let the salve cool and solidify completely before sealing with lids.

These basic guidelines should help you get started with making your own herbal teas, tinctures, oil infusions, and salves. Adjust the ingredients and proportions based on your needs and preferences and the specific herbs you're using.

In many cases it is advisable to use just one herb per recipe then combine solutions individually as needed. Keeping the recipes simple is a good way of eliminating variables when trying to figure out what is actually working or not working for you, over time.

Special Tea: Garlic-Ginger-Cayenne Decoction

An anti-inflammatory tea for coughs and colds.

First Things First:

Refer above to the general instructions on how to properly brew a decoction.

Special Ingredients:

For this stimulating respiratory/throat/immune-boosting anti-inflammatory beverage, simply use three ingredients.

- **Fresh Garlic** (a few cloves, cut into large pieces).
- **Fresh Ginger Root** (thinly sliced pieces).
- **Powdered Cayenne Pepper** (a dash, ramp it up if you're brave).

Special Instructions:

Use equal parts garlic and ginger, or adjust to your liking. This is my go-to brew for whenever the upper respiratory tract is in need of some care. What's nice about this combination is the way the spiciness of this drink changes the sensation in the throat, chest, lungs and even the sinuses and ear canals. It really gives the feeling of "burning out" the sickness. When I make this tea I know I am fighting off ills with a powerful weapon.

Special Tea: Mint-Mullein Infusion

Another anti-inflammatory tea for coughs and colds. Soothing and rich in vitamin C.

First Things First:

Refer above to the instructions on how to properly brew an infusion.

Special Ingredients:

- **Mullein Leaves** (either fresh or dried).
- **Fresh Ginger Root** (either fresh or dried).
- **Honey** (for a relatively healthy sweetener).

Special Instructions:

Use equal parts mullein leaves and mint (adjust to your liking) and honey to taste for added benefit and flavor. The mucilage in this tea infusion helps to alleviate coughs, cold, and flu, promoting general pulmonary (respiratory) health.

Essential Oils

Aromatherapy oils, also known as essential oils, are another way that herbs can be used beneficially against inflammation. You can use these in a diffuser, in salves, or in a carrier oil to use externally or in a bath.

***Caution:** *Essential oils should never be used internally in any way.*

Essential Oils Commonly Used for Inflammation

- **Lavender** (*Lavandula angustifolia*): Known for its calming, pain relieving and anti-inflammatory properties, lavender oil can help reduce inflammation and pain and promote relaxation.
- **Frankincense** (*Boswellia carterii*): Has potent anti-inflammatory effects and is often used to support joint health and reduce inflammation-related pain.
- **Peppermint** (*Mentha piperita*): Provides a cooling sensation and helps relieve muscle pain and inflammation. It's also refreshing and energizing.
- **Eucalyptus** *(Eucalyptus globulus)*: Known for its anti-inflammatory and decongestant properties, eucalyptus oil can help with respiratory inflammation and muscle soreness.
- **Chamomile** (*Matricaria chamomilla* or *Anthemis nobilis*): Both Roman and German chamomile oils have anti-inflammatory and calming properties, making them useful for skin inflammation and soothing nerves.
- **Tea Tree** (*Melaleuca alternifolia*): Has strong antibacterial and anti-inflammatory properties, making it effective for treating skin inflammation and infections.
- **Rosemary** (*Rosmarinus officinalis*): Contains antioxidants and anti-inflammatory compounds that can help reduce inflammation and improve circulation.
- **Ginger** (*Zingiber officinale*): Known for its warming and anti-inflammatory properties, ginger oil can help with muscle and joint inflammation.
- **Helichrysum** (*Helichrysum italicum*): Has potent anti-inflammatory and antioxidant properties,

beneficial for reducing inflammation and promoting healing.

- **Bergamot** (*Citrus bergamia*): Has both calming and uplifting effects, and its anti-inflammatory properties can help with skin inflammation and tension.
- **Cypress** (*Cupressus sempervirens*): Supports circulation and has anti-inflammatory properties, useful for muscle and joint inflammation.
- **Juniper Berry** (*Juniperus communis*): Known for its detoxifying and anti-inflammatory properties, juniper berry oil can help with joint and muscle inflammation.
- **Geranium** (*Pelargonium graveolens*): Balances emotions and has anti-inflammatory properties that can benefit skin inflammation and promote healing.
- **Patchouli** (*Pogostemon cablin*): Has anti-inflammatory and antiseptic properties, useful for skin conditions and promoting relaxation.
- **Yarrow** (*Achillea millefolium*): Contains anti-inflammatory and analgesic properties, helpful for reducing inflammation and muscle pain.

Tips for Using Aromatherapy Oils for Inflammation

- **Dilution:** Essential oils are potent and *should be diluted with a carrier oil* (such as coconut, grapeseed, avocado or almond oil) before applying to the skin.
- **Application:** Apply *diluted* oils topically to the affected area (or use them in a warm compress or bath) for a soothing effect.

- **Aromatherapy:** Use a diffuser to disperse oils into the air for inhalation, which can also provide therapeutic benefits.
- **Consultation:** If you have any underlying health conditions or are pregnant, consult with a qualified aromatherapist or healthcare provider before using essential oils.

Aromatherapy oils are a way to add not only beautiful fragrances, but systemic healing elements to your life. Using aromatherapy oils safely and effectively involves understanding the methods of application.

For the Bath

Benefits: Aromatic baths can be relaxing, help relieve stress, and allow for absorption of essential oil through the skin.

Guidelines:

- **Dilution:** ***Essential oils should be diluted before adding to bathwater!*** *Mix them with a carrier oil (like jojoba, coconut, or almond oil) or with a dispersant (such as liquid soap or bath salts) before adding to the bath.*
- **Quantity:** Use about 5–10 drops of essential oil per bathtub of water. More is not necessarily better and can cause skin irritation.
- **Dispersal:** Ensure the essential oil is well dispersed in the water before getting into the bath.
- **Duration:** Limit bath time to 15–20 minutes to avoid overexposure to essential oils.

Oil Burner/Diffuser

Benefits: Diffusing essential oils into the air can purify the air, promote relaxation, and provide therapeutic benefits through inhalation.

Guidelines:

- **Device:** Use a diffuser specifically designed for essential oils. There are various types such as ultrasonic, nebulizing, and heat-based diffusers.
- **Dilution:** Most diffusers require undiluted essential oils. Follow the manufacturer's instructions for the number of drops to use.
- **Water:** If using an ultrasonic diffuser, add water according to the device's instructions along with the essential oils.
- **Duration:** Diffuse oils intermittently—30 minutes at a time, to prevent olfactory fatigue and overexposure.

Topical Application

Benefits: Applying essential oils directly to the skin allows for localized therapeutic benefits and absorption into the bloodstream.

Guidelines:

- **Dilution:** Essential oils must be diluted in a carrier oil (e.g., jojoba, almond, coconut oil) before applying to the skin to prevent irritation or sensitization. General dilution ratios are 1–3% (1–3 drops of essential oil per teaspoon of carrier oil) for adults.
- **Patch Test:** Perform a patch test on a small area of skin before widespread use to check for any allergic reactions or skin sensitivities.

- **Application:** Apply diluted oil to pulse points, temples, or directly to affected areas such as joints or muscles.
- **Sun Sensitivity:** Some oils, like citrus oils (e.g., bergamot, lemon), can cause photosensitivity. Avoid sun exposure for 12–24 hours after topical application.

Other Natural Supplements to Consider

Berberine

What is Berberine?

Berberine is a bioactive compound extracted from several plants, including Berberis species (like barberry and Oregon grape). It has been used for centuries in traditional Chinese and Ayurvedic medicine for its powerful health benefits. Today, berberine is recognized for its potential to support metabolic health, fight inflammation, and regulate blood sugar levels.

Mechanism of Action:

Berberine works by activating an enzyme called AMP-activated protein kinase (AMPK), often referred to as the body's "metabolic master switch”. This enzyme plays a crucial role in regulating energy metabolism and reducing inflammation. Berberine also influences gut microbiota, improves insulin sensitivity, and modulates pathways linked to oxidative stress and inflammation.

Potential Benefits of Berberine:

- **Blood Sugar Regulation:** Berberine has been shown to lower blood sugar levels by improving insulin sensitivity and reducing glucose production in the liver. It's often compared to pharmaceutical drugs like metformin for managing blood sugar.
- **Anti-inflammatory Effects:** Berberine reduces inflammatory markers such as interleukin-6 (IL-6) and tumor necrosis factor-alpha (TNF-α), which are associated with chronic diseases like arthritis and metabolic syndrome.
- **Cholesterol and Heart Health:** Studies suggest berberine can lower LDL (bad) cholesterol and triglycerides while increasing HDL (good) cholesterol, reducing the risk of cardiovascular disease.
- **Gut Health Support:** By modulating gut microbiota and reducing inflammation in the digestive tract, berberine can aid in managing conditions like irritable bowel syndrome (IBS).
- **Weight Management:** Berberine may assist with weight loss by improving fat metabolism and suppressing fat cell formation.
- **Forms and Usage:** Berberine is available in capsules, powders, and tablets. The recommended dosage typically ranges between 500–1,500 mg per day, divided into two or three doses, as berberine has a short half-life in the body. It is often taken before meals to maximize its effects on blood sugar regulation.

Considerations:

- **Quality and Source:** Look for berberine supplements from reputable manufacturers that

conduct third-party testing to ensure purity and potency.

- **Side Effects:** Berberine can cause mild gastrointestinal discomfort, such as bloating or diarrhea, especially at higher doses.
- **Interactions:** Berberine may interact with medications, including blood sugar-lowering drugs, antibiotics, and anticoagulants. Consult a healthcare provider before use, particularly if you are on other medications.
- **Pregnancy and Breastfeeding:** Avoid berberine during pregnancy and breastfeeding, as its effects in these populations are not well-studied.

Berberine's ability to target multiple pathways makes it a promising natural compound for supporting metabolic health and reducing inflammation.

CBD (Cannabidiol)

What is CBD?

CBD, or cannabidiol, is a compound derived from the cannabis plant. As we know, the cannabis plant is famous for its psychoactive compound THC (tetrahydrocannabinol), but unlike THC, CBD doesn't produce a psychoactive effect. The amount of CBD in a plant can fluctuate depending on the genetics, and it is possible to have cannabis plants that produce just CBD, and not THC. At any rate, the compound can be extracted from the plant and it can be utilized for its healthful benefits.

Mechanism of Action:

The CBD compound seamlessly interacts with the body’s natural endocannabinoid system (ECS), which is involved in

regulating various physiological processes, including inflammation. CBD also influences cannabinoid receptors (CB1 and CB2) and other receptors in the ECS, which play roles in modulating immune response and inflammation.

Potential Benefits of CBD for Inflammation:

- **Reduction of Pro-inflammatory Markers:** Studies suggest that CBD may help reduce levels of pro-inflammatory cytokines and markers in the body, which are associated with inflammation.
- **Pain Relief:** CBD may alleviate pain associated with inflammation by interacting with neurotransmitters and receptors involved in pain perception.
- **Neuroprotective Effects:** CBD's anti-inflammatory properties extend to the central nervous system, potentially offering protection against neuroinflammation.

Forms and Usage:

CBD is available in various forms, including oils, capsules, edibles, topicals (creams, balms), and inhalable products. The appropriate form and dosage can depend on individual preferences and the specific condition being treated. It should be extracted under proper conditions, so make sure to purchase lab-controlled CBD isolate.

Considerations:

- **Quality and Source:** Ensure you're purchasing CBD products from reputable sources that provide third-party testing to verify purity and potency.
- **Legality:** Check the legality of CBD products in your region, as regulations can vary.

- **Interactions:** Consult with a healthcare provider if you are taking medications, before using CBD, to avoid potential interactions.

Castor Oil

While many of us think castor oil is something from an old wive's tale, when it comes to natural remedies, castor oil is dependable, versatile, and quietly powerful. Known for centuries as a healing oil, castor oil has a humble, almost magical ability to soothe, repair, and rejuvenate the body. If you're looking for a gentle, natural solution to ease inflammation, castor oil might just become your new favorite wellness staple.

What Makes Castor Oil So Special?

Castor oil is derived from the seeds of the Ricinus communis plant, which is native to East Africa and the Mediterranean. The oil has a thick, sticky consistency and a rich, earthy scent that may feel a bit unusual at first but becomes quite comforting once you get used to it. The secret behind castor oil's benefits lies in its unique chemical makeup, especially its high concentration of ricinoleic acid—a fatty acid known for its impressive anti-inflammatory and pain-relieving properties.

While many oils offer anti-inflammatory benefits, ricinoleic acid in castor oil works wonders by penetrating deep into the skin, providing relief to sore muscles, joints, and irritated skin. The oil also boasts impressive moisturizing properties, making it a skin-friendly option for soothing dry patches, calming eczema, and reducing redness.

Choosing the Best Castor Oil

Not all castor oil is created equal, so choosing the best type is key to unlocking its full potential. Here are a few factors to consider:

- **Cold-Pressed Castor Oil:** When purchasing castor oil, opt for cold-pressed. This type is extracted without using heat, which helps retain its natural nutrients and purity. Cold-pressed oils are generally higher quality, as they preserve the full spectrum of nutrients castor oil has to offer.
- **Organic and Hexane-Free:** Look for an organic, hexane-free variety whenever possible. Organic ensures that it’s free of pesticides and chemicals, while hexane-free means it hasn't been exposed to industrial solvents, keeping it pure and gentle on sensitive skin.
- **Unrefined:** Choose an unrefined oil to benefit from the natural compounds in castor oil. Refined oils may have undergone processes that strip away beneficial elements, reducing its effectiveness for medicinal uses.

How to Use Castor Oil for Inflammation

Castor oil is easy to use at home, and there are a variety of ways to incorporate it into your wellness routine.

Here are some tried-and-true methods:

- **Castor Oil Packs:** This is one of the most popular and effective ways to use castor oil for inflammation. Here’s how you can make one at home:
    - Soak a clean piece of cotton cloth or flannel in castor oil until it’s saturated but

not dripping.
    - Apply the cloth to the area of inflammation, whether that's an achy joint, a sore muscle, or even your abdomen.
    - Cover the cloth with plastic wrap (to avoid mess) and then another thin layer of cotton cloth or flannel and place a heating pad or hot water bottle on top. The warmth helps the oil penetrate deeper into the tissues.
    - Relax for about 20–60 minutes. You can do this a few times a week to reduce inflammation and pain.
- **Direct Application:** For areas of skin inflammation or small muscle aches, you can apply a small amount of castor oil directly to the skin and massage it in. A little goes a long way; castor oil is thick, so start with a small amount and add more if needed. Massaging the oil helps stimulate circulation and allows the ricinoleic acid to go to work on the underlying inflammation.
- **Bath Oil Blend:** For overall body aches or general inflammation, try adding a tablespoon of castor oil to a warm bath. To prevent it from just floating on the surface, mix it with a bit of Epsom salt or a natural carrier oil, like coconut oil, to help it disperse. A soak in this blend can be especially soothing for those with arthritis or chronic pain.

Why Castor Oil Works So Well for Inflammation

Castor oil's anti-inflammatory effects are supported by its unique ability to penetrate deeply into tissues. Ricinoleic acid can reduce the production of inflammatory molecules, such as prostaglandins, which contribute to pain and

swelling. This means castor oil can act as a natural remedy for various inflammatory conditions, including arthritis, muscle strains, and even certain skin inflammations like eczema and psoriasis.

Additionally, castor oil stimulates lymphatic circulation, which is essential for reducing inflammation. When lymph fluid flows freely, it helps remove toxins and reduce swelling. For people with autoimmune conditions or inflammation in the digestive tract, castor oil packs over the abdomen can support better lymphatic drainage and relieve discomfort.

More Than Skin Deep: Other Health Benefits

Beyond inflammation, castor oil has some amazing side benefits:

- **Improved Digestion:** Applied as a pack over the stomach, castor oil may aid digestion by reducing bloating and relieving constipation.
- **Skin Healing:** Known for its antibacterial and antifungal properties, castor oil is excellent for treating fungal infections and minimizing acne.
- **Hydration Boost:** Its moisturizing properties make castor oil an excellent choice for hydrating the skin, taming frizzy hair, and even strengthening nails.

A Few Words of Caution

While castor oil is generally safe for external use, it’s potent, so a little goes a long way. Always do a patch test first, especially if you have sensitive skin. Do not use castor oil on open wounds and avoid castor oil completely if you’re pregnant, as it can stimulate muscle contractions when ingested.

It’s easy to overlook the simple, natural remedies that have been used for generations. Castor oil is one of those humble yet powerful allies—a gift from nature that gently soothes and heals without the need for harsh chemicals or complicated treatments.

Peptides

What are Peptides?

Peptides are short chains of amino acids, which are the building blocks of proteins. In the context of inflammation and health, certain peptides have been identified for their potential to modulate immune responses and inflammation.

Types and Mechanisms:

- **Creatine Peptide:** Helps muscle development.
- **Follistatin Peptide:** Helps muscle development, weight loss and female reproductive health.
- **Collagen Peptides:** These are popular for joint health and may indirectly help with inflammation related to joint conditions.

Potential Benefits for Inflammation:

- **Modulation of Immune Response:** Certain peptides can interact with immune cells and cytokines, influencing the balance between pro-inflammatory and anti-inflammatory responses.
- **Tissue Repair:** Peptides like collagen peptides may support tissue repair processes, which can be beneficial in managing inflammatory conditions.
- **Skin Health:** Peptides applied topically or ingested orally may support skin health by

promoting collagen production and reducing inflammation associated with skin conditions.

Forms and Usage:

- Supplements (capsules, powders).
- Topical creams or transdermal patches.
- Nasal sprays.
- Therapeutic injections (done by a doctor or at a wellness center).
- Food sources (oats, hempseed, flaxseed, fish, lentils, beans, soy).

The form and dosage can vary based on the specific peptide and its intended use. The issue with peptides is absorption, in that they break down in the digestive tract, so taking peptides orally may not be as beneficial as some of the other methods. Talk to your doctor before using peptide supplementation to find out what is best for you.

Oil Pulling

Oil pulling is an ancient Ayurvedic practice that involves swishing oil in your mouth for a specified period, usually around 10–20 minutes, and then spitting it out. This practice is believed to help detoxify the body and improve oral health. The benefits of detoxification are extensive, including helping to initiate weight loss and improving sleep. If you can manage to add this strategy to your game, you'll start a cascade of beneficial effects in your body.

What Does Oil Pulling Do?

Studies have shown that oral health is closely linked to systemic inflammation. Oil pulling removes bacteria and toxins from the mouth, improves oral hygiene, and can

potentially whiten teeth. Some studies suggest it can reduce plaque and gingivitis. Oil pulling leverages the properties of the oils used, which can be antimicrobial and anti-inflammatory.

By reducing harmful bacteria in the mouth, oil pulling can prevent the spread of bacteria and their byproducts to other parts of the body. This reduction in bacterial load can help lower the body's overall inflammatory burden. Conditions like periodontitis (gum disease) are associated with increased levels of inflammatory markers such as C-reactive protein (CRP). Oil pulling can reduce gum inflammation and potentially lower systemic inflammation markers. Reducing the overall toxic load in the mouth can have positive downstream effects on the entire body, with fewer toxins entering the bloodstream and triggering inflammatory responses. Imbalances in oral bacteria can also affect the gut microbiome, leading to dysbiosis, so by improving oral hygiene through oil pulling, you may also support a healthier gut microbiome, thereby reducing systemic inflammation.

Oil pulling's detoxifying power is compounded by pulling toxins directly out of the bloodstream through the soft tissues in the mouth, in a sort-of reverse sublingual effect.

With such impressive detoxifying ability, it's a shame this practice is not so well utilized in modern culture where we perhaps need it more than any other time-period, with the pollutants that we absorb from our environment every day.

How to Do Oil Pulling

You can try various oils to discover which taste and consistency is most to your liking and preference.

- **Firstly:** Choose your oil.

    - Coconut oil is rich in lauric acid, which has antimicrobial properties.
    - Sesame oil, traditionally used in Ayurvedic medicine, is known for its ability to reduce oral bacteria.
    - Olive oil contains antioxidants and anti-inflammatory properties.
    - Castor oil, although not commonly used for oil pulling, certainly can be. It contains ricinoleic acid, which has anti-inflammatory and antimicrobial properties.
    - ***Caution:** *Do not use topical magnesium oil or any essential oil for oil pulling.*
- **Next:** Take about one tablespoon of the oil in your mouth and begin to swish or “pull” it slowly through the front of your teeth and gums (coconut oil may have to melt first).
- **After That:** Continue swishing for as long as possible, ideally up to 10–20 minutes, which may take some practice and getting used to. Ensure the oil moves between your teeth.
- **When Ready:** Spit out the oil. Be sure to spit out all of the oil and do not swallow any of it. If you spit the oil into the bathroom sink too often, it may clog the pipes, so depending on your location/situation I recommend spitting into tissues and tossing them into the trash bin, or into the toilet or maybe just spit outdoors if you happen to live in the woods.
- **Lastly:** Rinse your mouth with warm water and brush your teeth as usual. Maybe use a tongue scraper at this time also, which is another Ayurvedic practice worth mentioning, or just brush your tongue as well.

Additional Oil Pulling Guidelines

- **Choose Quality Products:** Use high-quality, organic oils for oil pulling.
- **Stay Hydrated:** Drink plenty of water throughout the day to help with detoxification and to support the effectiveness of this practice.
- **Consistency Is Key:** Try to do this practice daily for best results. Choose a time when you can easily integrate it, such as during your morning or nighttime routine.

Incorporating oil pulling into your daily or even weekly practice will allow you to harness the detoxifying and anti-inflammatory benefits these natural culinary/medicinal oils offer.

Chapter 8: Magnesium the Wonder Mineral

Magnesium is a truly underrated biological building block. It is utilized in virtually every biological process. It can be found in some form in every body cell and is one of the most significant micronutrients in our biological systems, involved in over 300 biochemical reactions. It plays a critical role in numerous biochemical processes in the body and acts as a cofactor in more than 300 enzymatic reactions that are crucial for our well-being.

***Caution:** Magnesium supplementation is not advised for those with kidney disease, or neurodegenerative disorders (such as Alzheimer’s).

Magnesium Basics

You know how you sometimes feel sluggish or have annoying muscle cramps? It turns out magnesium deficiency is likely a contributor, as magnesium plays a huge role in keeping our muscles happy and functional. Magnesium phosphate $Mg_3(PO_4)_2$ is vital when it comes to building and energizing muscle tissue. Without enough of it, our muscles can't do their thing properly, leading to cramps and weakness.

Not only that, but magnesium is crucial for our nerves. The nerves are the messengers in our body, carrying important signals back and forth to help it all work together well. Magnesium phosphate helps these messengers stay sharp

and efficient. When we're low on magnesium, these signals can get confused, leading to tingling, numbness, or even more severe nerve issues. If you've ever felt those sensations in your limbs, it might be your body saying, “Hello?! I need more magnesium!”

Magnesium also helps in vitalizing brain function, keeping our minds sharp and focused. Studies have shown that magnesium can improve memory and learning capabilities. Plus, it plays a role in regulating our mood. If you're feeling a bit down or foggy-headed, upping your magnesium intake might be the boost you need.

Magnesium's benefits extend beyond muscles, nerves, and the brain. It’s essential for bone health, managing blood sugar levels, and maintaining normal blood pressure. It’s the linchpin (almost) of our bodily functions. Prolonged magnesium deficiency isn't just about feeling tired or having muscle cramps; it can lead to low calcium and potassium levels too, which are also crucial for various bodily functions. This all means that keeping our magnesium levels in check is a big deal.

Here’s a closer look at how magnesium works its magic:

- **Muscle Function and Protein Synthesis:** Magnesium is essential for muscle contraction and relaxation. It interacts with calcium, which is needed for muscle contractions, and helps regulate this process. Without sufficient magnesium, muscles can become tense. Additionally, magnesium is involved in protein synthesis, which is vital for muscle repair and growth. By participating in the activation of amino acids, magnesium ensures that the building blocks of proteins are properly utilized.

- **Nerve Function:** Magnesium helps maintain the electrical potential of nerve cells, which is crucial for the transmission of nerve impulses. It acts as a natural calcium blocker, helping to regulate the flow of calcium into the nerve cells. This is important because excessive calcium can lead to overexcitation of nerves, resulting in symptoms like hyperactivity and anxiety. Magnesium helps to keep the nervous system balanced and prevents these issues.
- **Brain Health:** Magnesium is vital for brain function and plays a role in synaptic plasticity, which is essential for learning and memory. It helps regulate neurotransmitters, which are chemicals that transmit signals in the brain. For instance, magnesium modulates the activity of glutamate, an excitatory neurotransmitter, and GABA, an inhibitory neurotransmitter, thus maintaining a balance between excitation and inhibition in the brain. This balance is crucial for preventing overstimulation that can lead to neurological disorders.
- **Bone Health:** About 60% of the body's magnesium is stored in the bones. Magnesium is important for bone formation as it influences the activities of osteoblasts and osteoclasts, the cells responsible for building and breaking down bone tissue. It also helps regulate the levels of calcium and vitamin D, both of which are critical for bone health. Adequate magnesium intake supports strong bones and reduces the risk of osteoporosis.
- **Metabolism and Energy Production:** Magnesium is a key player in energy production. It is involved in the synthesis of ATP (adenosine triphosphate), which is the primary energy currency of the cell. Magnesium ions stabilize ATP

and are required for the phosphorylation reactions that release energy from ATP. Without magnesium, our cells would not be able to efficiently produce or use energy, leading to fatigue and weakness.

- **Blood Sugar Regulation:** Magnesium plays a role in the metabolism of carbohydrates and glucose regulation. It helps improve insulin sensitivity, which is critical for maintaining normal blood sugar levels. Low magnesium levels have been linked to insulin resistance, which can lead to type 2 diabetes and metabolic syndrome.
- **Cardiovascular Health:** Magnesium helps regulate blood pressure by acting as a natural calcium channel blocker, relaxing the blood vessels, and improving blood flow. It also helps maintain a regular heartbeat and prevent arrhythmias by stabilizing the electrical activity in the heart.

(*Magnesium*, National Institutes of Health, 2021)

Magnesium is a powerhouse mineral that supports a wide range of bodily functions, you can see why adequate magnesium intake is vital for maintaining overall health and preventing various chronic conditions.

Magnesium and Inflammation

It’s a no-brainer that, with magnesium affecting so much of our bodies, it is also implicated in regulating the body’s inflammatory responses.

Here’s how magnesium helps in tackling inflammation:

- **Regulating Inflammatory Cytokines:** Magnesium has been shown to modulate the immune response by influencing the production of

cytokines, which we have mentioned before. These are signaling proteins involved in the inflammatory process. It helps to balance pro-inflammatory cytokines (like TNF-α and IL-6) and anti-inflammatory cytokines (like IL-10). By keeping these in check, magnesium can reduce excessive inflammation that might otherwise damage tissues and organs.

- **Reducing Oxidative Stress:** Oxidative stress occurs when there’s an imbalance between free radicals and antioxidants in the body, leading to inflammation and tissue damage. Magnesium acts as a cofactor for antioxidant enzymes, such as glutathione peroxidase. These enzymes help neutralize free radicals, thereby reducing oxidative stress and subsequent inflammation.
- **Inhibiting NF-κB Pathway:** The NF-κB (nuclear factor kappa-light-chain-enhancer of activated B cells) pathway is a key regulator of inflammation in the body. When activated, it can lead to the expression of various inflammatory genes. Magnesium can inhibit the activation of this pathway, thereby reducing the expression of these inflammatory genes and mitigating the inflammatory response.
- **Managing Insulin Sensitivity:** Magnesium controls insulin sensitivity. When cells respond better to insulin, blood sugar levels remain stable, and the inflammatory response is minimized. This is particularly beneficial for individuals with metabolic syndrome or type 2 diabetes, conditions often linked to chronic inflammation.
- **Supporting Endothelial Function:** The endothelium is the thin layer of cells lining the blood vessels. When it's inflamed, it can lead to cardiovascular problems. Magnesium helps

improve endothelial function by reducing the production of pro-inflammatory molecules and promoting the release of nitric oxide, a molecule that helps relax blood vessels and reduce inflammation.

- **Modulating Immune System:** Magnesium plays a role in regulating the activity of various immune cells, including macrophages and T cells, which are involved in the body's inflammatory response. By ensuring these cells function properly, magnesium helps maintain a balanced immune response and prevents chronic inflammation.
- **Balancing Gut Microbiota:** Emerging research suggests that magnesium influences the composition of gut microbiota, the community of microorganisms living in our intestines. A healthy balance of gut bacteria is crucial for controlling inflammation. Magnesium helps support a beneficial microbiota composition, which in turn can reduce systemic inflammation.

So, you can easily see how increasing magnesium in your body can be very beneficial!

Signs and Symptoms of Magnesium Deficiency

In a perfect world, you would get your magnesium mainly from your diet. Nuts, seeds, fish, legumes, wholegrains, leafy greens, and some dairy products all contain it. But with our sporadic diets, and questionable food sources these days, it is important to supplement.

The amount of magnesium you need depends on your life stage and sex. Average daily recommended amounts are listed below in milligrams (mg). Be aware that going above

a certain amount is not advised so those upper limits are included in the chart below as well.

The top signs that your magnesium may be lacking include:

- Fatigue.
- Muscle weakness and/or cramps and spasms.
- Numbness and tingling.
- Loss of appetite.
- Severe mood swings.
- Nausea and vomiting.
- Personality changes.
- Abnormal heartbeat.
- Seizures.

Some people are more at risk for dangerously low levels of magnesium. Frequent alcohol drinkers, those with type 2 diabetics, the elderly, people undergoing cancer treatments, those who use diuretics or proton pump inhibitors (PPIs) often, and those with gastrointestinal issues need to pay more careful attention to their magnesium intake.

Magnesium Intake Recommendations and Upper Limits

Life Stage	Recommended Daily Amount	Upper Limit (Supplements/Medications)
Birth to 6 months	30 mg	Not established (medical supervision only)
Infants 7–12 months	75 mg	Not established (medical supervision only)
Children 1–3 years	80 mg	65 mg
Children 4–8 years	130 mg	110 mg
Children 9–13 years	240 mg	350 mg
Teen boys 14–18 years	410 mg	350 mg

Teen girls 14–18 years	360 mg	350 mg
Men	400–420 mg	350 mg
Women	310–320 mg	350 mg
Pregnant teens	400 mg	350 mg
Pregnant women	350–360 mg	350 mg
Breastfeeding teens	360 mg	350 mg
Breastfeeding women	310–320 mg	350 mg

(*Magnesium*, National Institutes of Health, 2021)

**The Upper Limit (UL) may be lower than the RDA in some places. This is because:*

- ***RDA:*** *Reflects the average daily intake level that meets the nutritional needs of nearly all (97–98%) healthy individuals. This includes magnesium from all sources: food, beverages, and supplements.*
- ***UL:*** *Specifies the highest daily intake level that is unlikely to cause adverse effects. It applies only to magnesium from supplements and medications, not food.*

Topical Magnesium as an Option

Until recently, the idea that magnesium could be effectively absorbed transdermally (through the skin) was not widely accepted by the medical community. However, emerging research is shifting the entire perspective on transdermal absorption and it turns out that topical application might offer even higher absorption rates than oral ingestion. We actually absorb way more through our skin than was previously thought. Most of our required vitamin D is absorbed through the skin. Nicotine patches and hormone

patches are prime examples of the latest advances in medical science that utilize transdermal applications.

This effect, unfortunately, can also work against us. Studies on occupational exposure have shown that chemicals like organophosphates (pesticides) can be absorbed through the skin. Workers in certain industries who are exposed to pesticides, solvents, and heavy metals that can penetrate the skin and enter the bloodstream are at a risk for systemic toxicity. Even those who work a lot with aromatherapy oils can end up with an oil “headache" from absorbing it via their hands and bodies if they are not cautious.

One key study on liquid magnesium highlighted by Navin Chandrasekaran at the University of Queensland demonstrated that when magnesium chloride ($MgCl_2$) solution was applied topically, magnesium ions could permeate the stratum corneum, the outer layer of the skin. The study further revealed that higher concentrations of magnesium chloride and longer exposure times resulted in faster permeability and increased penetration of magnesium ions. This is significant because it suggests that transdermal magnesium application could be a more efficient way to boost magnesium levels in the body (Chandrasekaran, 2015).

The growing interest in magnesium absorption through the skin has led to the development of many transdermal magnesium products. These products are designed to deliver magnesium directly to the muscles and joints, bypassing the digestive system. This can be particularly helpful for individuals who have digestive issues that impair magnesium absorption (like Crohn’s or celiac disease) or those who need targeted relief in specific areas of the body.

Epsom salts, which are composed of magnesium sulfate, are a popular means of transdermal magnesium application. People often add Epsom salts to their bathwater to soak in

the benefits. The warm water helps open up the pores, potentially allowing even more magnesium to enter the body. Many users report reduced muscle soreness and a sense of relaxation after an Epsom salt bath. Add a couple drops of essential oil to the bath and enjoy the added benefits of herbal aromatherapy too. This practice is the ultimate care for self, add it to your lifestyle and feel your body’s gratitude.

Homemade Magnesium Oil Recipe

Here’s a simple recipe to make magnesium oil at home from magnesium chloride crystals (that can be readily bought online):

- In a tempered glass saucepan, bring 2 cups of distilled water to a boil.
- Add 1 cup of pure magnesium chloride crystals to the boiling water.
- Stir until the crystals are completely dissolved.
- Let the mixture cool.
- Store the liquid in a tightly covered glass or plastic jar or spray bottle.

How to use it? Simply apply it to your skin.

Spray or rub the magnesium oil directly onto your skin. Common areas include the arms, legs, stomach, and feet. These areas have thinner skin, which may enhance absorption.

If you’re new to using magnesium oil, start with a small amount to see how your skin reacts. You can gradually increase the amount over time. You may experience a tingling sensation, especially the first application, but if this causes any discomfort, you can simply rinse it off with water.

Avoid applying magnesium oil near the eyes or onto broken skin. Do not use it immediately after shaving, as it can cause stinging or irritation.

Consistent use is key to maintaining optimal magnesium levels, so for the best results, use magnesium oil regularly.

***Reminder:** Magnesium supplementation is not advised for those with kidney disease, or neurodegenerative disorders (such as Alzheimer’s).

Chapter 9: Cold Therapy

> *Arthritis, Crohn's disease, psoriasis, depression—all of those diseases are a result of our neglected biochemistry. We need to be stimulated to help fight disease. Cold is a great stimulator.*
>
> —Wim Hof

Having finished a three-minute cold plunge on a brisk Autumn day, I feel not only a sense of intense relief, but also a sense of fulfilled commitment to myself. My self-doubt has melted away and been replaced with a feeling of strength and satisfaction. My body is starting to shift from the experience very quickly, and a unique feeling is starting to emerge, a buzzing energy. I get into a robe and relax, as every part of me feels vital and alive. Pain levels sit at almost nil. I feel ready to face whatever I need to face today.

Greek physician Hippocrates, often called the "Father of Medicine," advocated for the use of cold baths to treat various ailments. Romans built elaborate bathhouses (thermae) featuring cold plunge pools (frigidaire) as part of their bathing rituals. In places like Finland, Sweden, and Norway, cold water plunges are a traditional practice often paired with sauna use.

Cold water therapy (an offshoot of cryotherapy and hydrotherapy) is known to stimulate the body’s circulation and greatly reduce inflammation. In recent years, aficionados like Wim Hof, the Dutch extreme athlete who became famous for his ability to withstand freezing temperatures, have raised the popularity of this healing

modality. Very interestingly, scientific studies done on Wim Hof’s body have shown an astonishing ability to fight off disease.

Plunging into an icy cold sea, shower, or bath, may not have such a huge appeal to many, that is widely understood. But it is like the elephant tied to a tiny stake with a flimsy rope, it is only the overthinking that makes this experience unsurmountable, when in truth it is physically quite simple. For the determined souls who have literally taken the plunge, they soon realize how mind and body-altering cold therapy can really be, and that it’s a game changer.

How Does It Work?

When you step into cold water, your blood vessels constrict (vasoconstriction). This is your body's natural response to preserve heat and protect your vital organs. Exposure to cold causes blood vessels to tighten, reducing blood flow, which in turn decreases swelling. Inflammation is often accompanied by swelling due to increased blood flow to the affected area. Cold water also numbs the affected area, reducing nerve activity, which means less pain.

When you get out of the cold water, your blood vessels dilate, or widen (vasodilation), increasing circulation. This process brings in new blood that flushes away metabolic waste and delivers fresh oxygen and nutrients to the tissues.

Studies show that cold water immersion can:

- Reduce levels of inflammatory markers like cytokines, the proteins that promote inflammation.
- Boost the immune system. The stress from the cold prompts the body to produce more white

blood cells, which are crucial for fighting off infections.
- Enhance nutrient delivery and waste removal throughout the body.
- Reduce mental stress and anxiety, partly due to the release of endorphins and the mental resilience built from enduring the cold.

(Jagim, 2024)

These effects also help reduce post-workout soreness by lessening exercise-induced “micro-trauma” cell damage to muscles.

Additionally, the process can flush away lactic acid, which builds up in muscles during exercise and can cause muscle pain, burning, weakness or cramping. When exercising, muscles need more energy than what they are receiving from oxygen, even with increased breathing. As a result, the body undergoes a process called glycolysis which produces energy directly from stored sugars in the muscle tissues. Lactic acid is a byproduct of that process, and the longer or harder you exercise, the more lactic acid accumulates in the muscles.

Lactic acid buildup is also a symptom of some serious illnesses. Cold therapy could potentially be used to help reduce lactic acidosis by naturally stimulating the circulatory system.

Different Approaches to Cold Therapy

When considering your cold therapy options, there are a few possibilities; a simple cold-water plunge, an ice plunge, or full-on cryotherapy. The benefits of cold therapy start doing their work upon the body right around the 60°F (15°C) mark, which is actually not that cold. To help with post-

workout soreness in the muscles, temperatures between 50–57°F (10–14°C) is ideal. For deeper therapeutic effects, temperatures simply decrease from there.

If you're new to cold water therapy, and are very leery of the experience, which is completely understandable, possibly start with cool showers first. Gradually decrease the water temperature over time. Once you’re comfortable with cold showers, you can try cold baths, then gradually add ice for even lower temperatures.

Another way to approach the process, if you are having trouble with the idea of submerging yourself willingly in cold water, is simply to do it with others. Ice plunges done in groups make it a supportive and social experience that can be very encouraging, helping to break down the mental barriers that can stand in the way of that first plunge. Group polar bear plunges are common in some cultures, especially in cold regions, for obvious reasons.

Basic cold plunge therapy is the easiest option:

- Cold-water immersion involves submerging the body in cold water, often between 46–60°F (8–15°C).
- This can be done in a bathtub, portable cold plunge tub, a swimming pool, or a natural body of water.
- Submersion duration is typically 2–15 minutes (this is something that each person should explore to find what feels doable to them individually).

Ice plunge therapy is just a colder option to the cold plunge therapy approach:

- Temperatures often range roughly between 35–46°F (2–7°C).

- Ice plunges can be done at home in a bathtub or portable cold plunge tub filled with cold water and ice, or in natural settings like lakes and rivers, providing a unique experience in the great outdoors.
- The duration of an ice plunge is normally in the range of 2–10 minutes, but again this is a personal choice, and it is best to start with a shorter time and work your way up as you feel more comfortable. At this temperature range it is not advisable to go much over 10 minutes.

Some points about cryotherapy:

- Cryotherapy, specifically whole-body cryotherapy, involves exposing the body to extreme cold temperatures for a short period, typically around 2–3 minutes. The temperature and exposure time are precisely controlled to ensure safety and to maximize benefits.
- This is usually done in a cryotherapy chamber or cryosauna, where the temperature can drop to between -200°F to -300°F (-130°C to -184°C).
- Specialized equipment and professional supervision make cryotherapy unavailable for home use. Sessions can be costly, often ranging from $30 to $100+ per session, depending on the location and facility.

These three options offer unique benefits and cater to different preferences and circumstances. Cryotherapy is more of a high-tech, quick, and precise treatment that requires professional facilities and comes at a higher cost. On the other hand, ice plunges and simple cold-water therapy are more accessible, affordable, and can be enjoyed as a social or nature-based activity, making them appealing

to those who appreciate a more communal or natural approach to cold therapy.

My personal practice has involved cold plunges ranging between 44–60°F, normally for 2–3 minutes with well water temperature that fluctuates depending on the season. I have bought a couple portable/inflatable tubs that are designed specifically for cold therapy. With this therapeutic modality becoming more popular there are many portable cold-plunge tub products available to choose from.

Precautions Regarding Cold Therapy

Before starting cold water therapy, especially if you have any cardiovascular conditions or other health concerns, it’s wise to chat to your doctor. Our bodies function optimally within a certain temperature range, so while frequent cold-water therapy is great, prolonged exposure in one session can be potentially dangerous if not done properly and with caution and common sense. It’s best to do cold plunging with some help around, for safety’s sake. Muscles can freeze or lock up, and if you’re on your own in a freezing ocean or lake, that isn't a good thing! Hypothermia is also a risk, so listen to your body and always assess the safety of the situation before doing a plunge and have dry towels and warm clothes, maybe even a canister of hot tea ready to go after the plunge. Even in a controlled environment like a portable plunge tub indoors, it is always best to slowly increase your tolerance for cold water temperatures over time with practice for safety; we are not all at the Wim Hof level!

General information to know first about cold water temperatures:

- Extremely cold water at or below 41°F (5°C) can lead to a cold shock response within minutes. This includes uncontrolled gasping, hyperventilation, and increased heart rate, and should be immediately managed. Cold shock can occur within the first 1–3 minutes. Hypothermia can start to set in after 15 minutes or less, depending on individual tolerance and body composition.
- Very cold water (41°F to 50°F/5°C to 10°C) is high risk. The body loses heat rapidly, and muscle function can be impaired, leading to loss of coordination and strength, which is obviously dangerous in water. Hypothermia can begin within 15–30 minutes. Longer exposure can lead to unconsciousness and eventually death if not rescued and rewarmed promptly.

Take preventative measures:

- Always prepare a way to warm up quickly after immersion, such as warm clothing and a hot drink if there isn’t any bright, warm sunshine to bask in.
- Avoid staying in cold water for too long to prevent hypothermia.
- Listen to your body and don’t push beyond your comfort zone.

Cold water therapy is a powerful tool for reducing inflammation, boosting recovery, and enhancing overall well-being. It’s backed by both science and centuries of anecdotal evidence. While it may seem daunting at first, with proper practices and a bit of bravery, cold therapy can become a refreshing, fun and vital part of your health routine and a valuable part of your strategy for fighting off systemic inflammation.

Chapter 10: Breathwork & Gentle Yoga

> *Breathing in, I calm my body. Breathing out, I smile. Dwelling in the present moment, I know this is a wonderful moment.*
>
> —Thich Nhat Hanh

Yoga is a personal focus inward where one can potentially find a physical/mental release from stress, a source of strength and balance, and even a deeper connection to the Self and the Universe. At the very core of yoga is the breath.

The Power of Breath

In yoga philosophy, the breath (pranayama) is considered the link between the body and mind. It is a vital tool that not only sustains life but also serves as a gateway to inner peace. Through conscious breathing practices, we can calm the mind, reduce stress, and enhance the body's overall vitality.

Benefits of Breathwork

Self-care doesn’t have to be complicated or expensive. Sometimes, all you need is your breath and a quiet spot to stretch out in.

Breathwork alone is a yogic practice that oxygenates the blood and has many benefits, including:

- **Stress Reduction:** Deep breathing techniques activate the parasympathetic nervous system, promoting relaxation and reducing stress hormone levels like cortisol.
- **Improved Mental Clarity:** Breathwork helps clear the mind, enhancing focus, concentration, and mental acuity.
- **Enhanced Energy Levels:** Proper breathing techniques increase oxygen intake, boosting energy levels and overall vitality.
- **Detoxification:** Deep breathing stimulates the lymphatic system, aiding in detoxification and removal of toxins from the body.
- **Emotional Balance:** Breathwork can help regulate emotions, promoting a sense of calm and emotional resilience.

You would think breathing is easy right? We all do it from birth. Yet many of us breathe way too shallowly, and don't understand the powerful healing benefits that specialized and mindful deep breathing can bring. Breathing deeply and in various learned patterns can be massively energizing.

Read on for three simple and effective breathwork exercises that you can try, along with one bonus at the end.

Diaphragmatic Breathing (Abdominal Breathing)

Benefits:

Calms the nervous system, reduces stress, increases oxygenation, and improves digestion.

How to Practice:

- Find a comfortable seated position or lie down on your back with your knees bent and feet flat on the floor.
- Place one hand on your chest and the other hand on your abdomen, just below your rib cage. This can be on the side of your chest and belly if that is comfortable, just so that your hands can feel the breath in these areas.
- Inhale deeply through your nose, allowing your belly to expand as you fill your lungs with air. Feel your hand on your abdomen rise.
- Exhale slowly and completely through your nose or mouth, allowing your belly to contract. Feel your hand on your abdomen lower.
- Continue this deep, rhythmic breathing for several minutes, focusing on the rise and fall of your abdomen with each breath.

Tip:

Practice diaphragmatic breathing for 5–10 minutes daily to experience its full benefits.

Box Breathing (Square Breathing)

Benefits:

Promotes relaxation, reduces anxiety, enhances focus, and balances the autonomic nervous system.

How to Practice:

- Lie down on your back with your knees bent. Your feet should be wide, letting your knees fall together to form a triangle. Place one hand on your

belly, and the other on your chest, if that is comfortable.

- Inhale deeply through your nose for a count of 4 seconds, feeling the breath fill your lungs.
- Hold your breath for a count of 4 seconds.
- Exhale slowly and completely through your nose for a count of 4 seconds, emptying your lungs fully.
- Hold your breath for another count of 4 before beginning the next cycle.
- Deeply inhale for a slow count of four.
- Hold your breath for another count of four.
- Exhale your breath this time for a count of five.
- Hold your breath still again for 4 counts.
- Repeat this cycle (inhale, hold, exhale, hold) for 6–8 rounds, gradually increasing the duration of the exhale by one count each time.
- At the end of the exercise allow the breath to return to normal. Slowly straighten the legs out so you're in a completely relaxed, lying down position. Let your arms fall to the sides, and take some moments to feel the effects in your body before getting up slowly and carefully.

Tip:

In this version of box breathing, as the exhale is stretched farther and farther out, it slows the breath down and deepens the relaxation in the body. Each inhale has to be deeper and fuller to account for the lengthening exhale.

Alternate Nostril Breathing (Nadi Shodhana)

Benefits:

Calms the mind, balances the left and right hemispheres of the brain, reduces stress, and promotes mental clarity.

How to Practice:

- Sit comfortably with your spine erect and shoulders relaxed. Place your right thumb on your right nostril and your right ring finger on your left nostril.
- Close your eyes and take a deep breath in through both nostrils.
- Press your right nostril closed with your thumb and exhale slowly and completely through your left nostril.
- Now inhale deeply through your left nostril.
- Close your left nostril with your ring finger, release your thumb from your right nostril, and exhale slowly and completely through your right nostril.
- This completes one cycle. Continue by inhaling through the right nostril and continue this alternate nostril breathing pattern for 5–10 rounds, focusing on smooth and controlled breaths.

Tip:

Keep your breaths slow and steady throughout the practice.

The Wim Hof Breathing Method

This breathing exercise is also relevant to mention here. The practice is designed to rapidly oxygenate the blood in preparation for a cold plunge and is a powerful breathing exercise. The method involves a series of sharp rhythmic (staccato) inhalations and exhalations either through the nose or the mouth for about a minute, followed by a deep inhale and holding the breath for as long as possible before

exhaling and repeating the process. The entire exercise is around 10 minutes.

I love the video with Wim Hof himself talking and leading you through the exercise (Hof, 2019). After completing it my body always feels as though there has been an injection of energy into my bloodstream, and for good reason, the oxygenating effect of this exercise on the body is significant.

Consider incorporating one or more of these breathwork exercises into your daily routine, based on your needs and preferences. Consistent practice can help you experience the calming, energizing, and centering effects of breathwork, supporting your overall well-being and managing stress effectively.

Gentle & Restorative Yoga

Each and every time you take the time for yourself to slow down and step onto a yoga mat, your body will thank you.

Yoga is often thought of as an activity that requires great flexibility and strength at first to even participate. People believe they need to be in great shape in order to start doing yoga, even though that is far from the truth. This is because the image put forth in society often depicts yogis twisted into shapes that the average body would never be able to achieve. The truth is that yoga is for everyone, no matter the size or shape or flexibility of one’s body. The point is to start where you are in a pose, then learn to gently stretch and relax the muscles, ligaments and tendons, in order to rid built up tension. By learning the basics first, it is possible to enjoy the benefits of yoga even after just one session.

There are many types of yoga; from yin yoga and restorative yoga, to Hatha, Ashtanga, Bikram or power yoga,

also hot yoga, chair yoga and others.

All are great ways to help stretch, strengthen, and sculpt the body, as well as relax the mind. Finding which form of yoga is accessible to your body is key, and no matter what form you choose, the core of the practice is the breath. It starts with the breath, and every pose can be enhanced and explored by simply deepening and slowing the breath.

Restorative yoga is the gentlest way to introduce yourself to practicing yoga. It involves gentle poses supported by props like pillows, bolsters, blankets, and blocks. By using these supportive props, the body is able to find comfort, then fully relax. It helps drain away stress and release tension, supporting the parasympathetic nervous system. Postures are held 5–10 minutes usually, and in these long, gentle poses it is a perfect opportunity to practice breathwork or allow the mind and body to slip into a state of meditation. With the simple act of letting the body completely relax and melt into stillness, there can be profound physical benefits.

Yin Yoga—An Introduction

Yin yoga is a practice that focuses on passive stretching to target the connective tissues, such as ligaments, tendons, and fascia, rather than the muscles. Holding poses for an extended period (usually 3–5 minutes or longer) helps lengthen the body’s denser, less pliable tissues to increase flexibility. It also stimulates the flow of energy (prana or qi) through the body's meridian lines (energy pathways in the body), promoting overall balance and well-being. The poses help bring better circulation into the various areas they focus on, promoting healing and lessening inflammation.

Yin yoga is a slow, almost meditative practice that can actually be challenging in its slowness at times. Holding the pose can feel like forever, but as time passes, something

wonderful happens. A warmth spreads through tissues, and deep within the joints, release starts to happen. Gradually there is greater ability to relax. It becomes possible to settle a bit deeper into the position. With increased flexibility comes strengthening, which in turn prevents future atrophy and injury. Just as wonderful, yin yoga isn't just about the physical experience, but it's like hitting pause on life's hustle and bustle. While the body unwinds, you can focus on the breath—deep inhales and slow exhales melt away stresses, lowering systemic inflammation.

Benefits of Yin Yoga

- **Improved Flexibility:** Targeting deep connective tissues enhances joint mobility and flexibility.
- **Stress Relief:** Holding poses in stillness calms the mind and body and reduces stress and anxiety.
- **Increased Circulation:** Yin yoga promotes blood flow to joints and tissues, aiding in healing and reducing inflammation.
- **Mindfulness and Meditation:** Long holds in poses cultivate mindfulness and a meditative state, enhancing self-awareness and inner peace.

The Three Stages of Yin Yoga

1. After choosing a pose, slowly take care when entering the position. In yin yoga you must first **FIND YOUR EDGE OF RESISTANCE**, within the pose, or, the place where the pose may be endured comfortably, without straining. This is the place that is the appropriate amount of stretch for *your* body, your personal version of the pose where you are not pushing too far beyond 60% of your ability. It may take some moving around a bit for

you to come to the perfect position that has that little bit of stretch, but not too much.

2. Next, in yin yoga, you seek to **FIND STILLNESS**. Quiet the body and settle into stillness in your position. Slow the breath and go within and feel yourself become a still point upon the earth. If you can't settle into the pose, pull back the intensity until it becomes easier to find stillness. In finding stillness, one also finds strength.
3. Third, in yin yoga, you **SURRENDER TO TIME**. Watch the breath and surrender to the experience of letting go of time. Let the sensations in your body arise, then just wash away. Forget all but the breath and the authenticity of the present moment. Release the mind during this practice and possibly find yourself feeling at one with the vast Universe. And holding the pose allows the tendons and ligaments of the body to very slowly relax and stretch.

When practicing yin yoga, most importantly, listen to your body and never push or strain within the poses. There is a difference between a minor discomfort that can be felt, and the feeling of actual pain. Yoga done properly will never require you to push to the point of pain, so always take it easier if things even begin to feel too intense. Remember that your pose does not have to look like anybody else's. Your body is unique, and your poses may work differently and look different than other people doing the same pose.

It's important to have proper instruction when delving into anything new, and yoga is no exception. A good teacher makes all the difference. My personal favorite yoga instructors who focus a lot on yin yoga and have extensive classes online are Melissa West and Travis Eliot. They each provide a large library of hundreds of free instructional videos on Youtube and also have membership programs

with additional classes and courses. During my tendon recovery, it was Melissa West's classes that were gentle and accessible enough for me to be comfortable in. Travis Eliot's instruction offers the same foundational principles with equally compelling teaching. At any rate, the internet is bursting at the seams with yoga instruction, you can find your own favorites or try mine.

Yin Yoga—Basic Postures and Sequences

Here are a few basic yin yoga postures and sequences that can be beneficial for specific aches and pains.

Banana Asana

Benefits:

Stretches the entire side body in lateral flexion. Helps to find relief from lower back and IT band pain. Helps posture and breathing. Strengthens back muscles and obliques.

Instructions:

- Lie flat on your back on a yoga mat, towel or blanket.
- Raise your arms over your head and bend your elbows, placing your hands on your elbows, like a box over your head.
- Lift your head, neck and arms a bit and shift them over to the right, then release them down again to the floor.
- Now also swing the legs over to the right, maybe hooking the left ankle over the right.
- Hold this position in a relaxed way, and breathe into the body core. Let the breath stretch and release the side body for a period of 3–10 minutes.

- Slowly bend elbows and bring arms down again to the chest.
- Gently bring the legs back to center and feel the rebound of your body reacting to the release of the pose.
- Start again and do the same sequence on the left.

Banana Asana is a restful and rejuvenating stretch and a great way to start a yoga session.

Butterfly Pose (Baddha Konasana)

Benefits:

Opens the hips, stretches the inner thighs, and stimulates the kidneys and bladder.

Instructions:

- Sit on the mat with your legs extended straight in front of you.
- Bend your knees and bring the soles of your feet together, allowing your knees to fall outward.
- Hold your feet with your hands, keeping your spine tall and your chest open.
- Gently fold forward from the hips, keeping your back straight, and bring your belly towards your feet.
- If necessary, you can sit on a cushion or blanket to elevate your hips for extra comfort. Also an option, support your head with a bolster or a foam roller propped up at an angle from the floor, or yoga blocks stacked up. Releasing the weight of the head will help release tension in the back and neck.
- Hold this pose gently for 3–5 minutes, focusing on deep breathing and allowing your thighs and hips to slowly relax and stretch.

- Optionally, use gentle movements, such as slight rocking or leaning forward, to deepen the stretch over time.

Butterfly Pose is a gentle way to release tension in the hips and groin, providing a calm stretch while promoting relaxation and flexibility.

Child's Pose (Balasana)

Benefits:

Stretches the lower back, hips, and thighs. Calms the mind and relieves stress.

Instructions:

- Slowly sit your hips back toward your heels, bringing your forehead to the mat.
- Keep your knees together or wider apart depending on what feels best for you.
- Stretch your arms forward, palms down, or rest them alongside your body, palms up.
- Focus on your breath, allowing the entire core of your body to expand with each inhale, then slowly relax with each exhale.
- Hold the pose for 3–5 minutes, focusing on deep, diaphragmatic breathing.

Dragon Pose

Benefits:

Stretches the hip flexors, quadriceps, and groin. Stimulates the liver meridian.

Instructions:

Start in a lunge position with your right foot forward, keeping your knee over your ankle and your left knee on the

floor.

- Lower your hips, feeling a deep stretch in your left hip flexor and thigh.
- Optionally, place props like a block or cushion under the front thigh or hips for added support.
- You can also raise your torso or place your forearms on the floor to deepen the stretch.
- Hold for 3–5 minutes on each side, focusing on your breath and relaxing into the stretch.

Seated Forward Fold (Paschimottanasana)

Benefits:

Stretches the spine, hamstrings, and calves. Calms the nervous system.

Instructions:

- Sit on the mat with your legs extended straight in front of you, keeping your feet flexed and your spine tall.
- Inhale to lengthen your spine, and as you exhale, hinge at your hips, bringing your chest towards your thighs.
- Keep your spine as long as possible and avoid rounding the back.
- Reach your hands toward your feet, ankles, or shins, depending on your flexibility.
- Hold for 3–5 minutes, allowing your body to relax into the stretch while focusing on deep, calming breaths.

Supported Fish Pose

Benefits:

Opens the chest and throat, stretches the front body, and improves breathing.

Instructions:

- Begin by sitting on the floor with your legs extended in front of you.
- Place a bolster or a stack of folded blankets underneath your upper back, supporting the spine between the shoulder blades.
- Allow your head to rest on the prop or on the mat, and extend your legs out in front of you or keep them bent with feet flat on the floor.
- Open your chest, letting your arms relax at your sides with palms facing up.
- Keep your neck relaxed, and focus on expanding the chest and breathing deeply into the belly.
- Hold for 3–5 minutes, maintaining a calm, focused breath.

Yoga for Specific Aches and Pains

- **Upper Back Tension:** Incorporate poses like Cat-Cow Stretch, Thread the Needle, Eagle Arms and Supported Fish Pose.
- **Neck Pain:** Practice gentle neck stretches, supported Bridge Pose, and gentle twists like Half Lord of the Fishes (Ardha Matsyendrasana).
- **Leg and Hip Pain:** Use poses like Standing Forward Fold, Dragon Pose, Butterfly (Baddha Konasana), and Wide-Legged Forward Fold (Prasarita Padottanasana) to stretch and release tension in the limbs. When doing any forward fold,

try adding support (yoga blocks stacked) under the head to relieve the stress on the neck and back.

Melissa West states that if she were to choose one yoga move among all of the hundreds of moves, that the Cat-Cow Stretch would be her number one choice for vitality. The health of the spine is so central to the entire body, and so it is worth the few moments it takes to practice this easy spinal stretch.

Cat-Cow Stretch

Benefits:

Improves spinal flexibility and relieves tension in the back and neck.

Instructions:

- Begin on your hands and knees in a tabletop position, with your wrists directly under your shoulders and knees under your hips.
- **For Cow Pose (Bitilasana):** Inhale and gently drop your belly towards the mat, lifting your tailbone and chest upwards. Gaze forward or slightly up.
- **For Cat Pose (Marjaryasana):** Exhale and round your spine upwards, tucking your chin to your chest and drawing your navel towards your spine.
- Flow between these two poses with each breath cycle, moving slowly and mindfully.
- Repeat for 1–2 minutes, focusing on spinal articulation.
- For an even more dynamic stretch, move the torso in circles first in one direction and then in the opposite direction, which moves the spine in a motion similar to that of a jump rope, gently

stretching and stimulating the spine and causing the production of synovial fluid in the vertebrae.
- You can rock yourself back and forth and side to side slightly to gently stretch the hips and shoulders while also in this basic pose.
- While flowing between cat and cow pose, take the opportunity to slowly rotate the head in circles as well, to relieve even more neck tension.

Practical Activity: Daily Mindful Movement Routine

Objective:

Enhance flexibility, reduce muscle tension, and promote relaxation to support inflammation management.

Duration:

15–20 minutes.

Equipment Needed:

Comfortable clothing, yoga mat (optional).

Routine:

- **Begin with Deep Breathing (2–3 minutes):**
    - Find a quiet space and sit or lie down comfortably.
    - Inhale deeply through your nose, filling your lungs with air.
    - Exhale slowly through your mouth, releasing tension and stress.
- **Neck and Shoulder Rolls (2–3 minutes):**
    - Slowly rotate your neck in a gentle circular motion, moving clockwise and then counterclockwise.
    - Roll your shoulders forward and backward to release tension.

- **Spinal Twist (2–3 minutes):**
    - Sit or lie down with your knees bent and feet flat on the floor.
    - Allow your knees to fall to the left, twisting your torso, placing your left hand on your right knee for support.
    - Hold the twist for several breaths, then switch sides.
- **Child's Pose (2–3 minutes):**
    - Kneel on the floor with your toes close together and your knees wide.
    - Lower your torso between your thighs and extend your arms forward or rest them by your sides.
    - Breathe deeply into your lower back and hips, allowing tension to melt away.
    - Have your forehead on the floor for a while, then turn the head to rest for a time on each side, gently stretching the neck.
- **Legs Up the Wall (5 minutes):**
    - Sit sideways close to a wall, then lie back and turn, extending your legs vertically up the wall.
    - Support your lower back with a pillow or folded blanket if needed.
    - Close your eyes and focus on your breath, allowing gravity to have its effect on the circulation in your legs while gently stretching your hamstrings and lower back.
- **Final Relaxation (2–3 minutes):**
    - Lie down in a comfortable position, such as Savasana (Corpse Pose), with your arms by your sides and palms facing up.
    - Close your eyes and consciously relax each part of your body, from head to toe.

    - Stay in this pose, focusing on deep breathing and allowing gravity to completely take over, letting tension wash away.

Incorporating breathwork, restorative yoga, and yin yoga into your routine can provide a myriad of benefits for combating inflammation, promoting relaxation, increasing flexibility, and improving overall well-being. I found that simply creating a permanent space to practice yoga and breathwork in my home was instrumental in helping me to really incorporate a yoga practice into my life. When the yoga mat is always rolled out in its place, all that you need to do is step or lay upon it.

Amazingly, the simplest act of just lying flat on one’s back in a corpse pose can help relieve skeletal stress. Place a pillow or two if needed under the knees or bend them with feet flat on the floor if that is more comfortable, in order to get the spine flat upon the floor. If this is all you manage to do every day, you can add another point to your game, call yourself a yogi, and enjoy where the practice takes you.

Remember to be aware of your body's limits and consult a healthcare professional if you have specific medical concerns or conditions.

Chapter 11: Biohacks for Reducing Inflammation

In our quest for wellness and pain relief, the landscape of health technologies and biohacks has expanded dramatically. From ancient practices like grounding to cutting-edge electromagnetic therapies, there are a wealth of options available today aimed at combating inflammation and promoting healing. This chapter briefly explores some of the most promising technologies and biohacks designed to alleviate inflammation, offering both ease of use and at-home options.

Here are some options that exist that you can choose to further explore in your quest for a healthy, pain-free life.

Grounding

Let’s start with something as simple as grounding, or earthing. The practice involves connecting directly with the Earth’s natural energy. To be clear, all earthing is grounding, but not all grounding is earthing. Earthing is the act of coming in contact with the natural ground, which has a grounding effect upon the body. Grounding can also be achieved by using grounding devices indoors that simulate the Earth’s natural energy.

The idea behind grounding is that contact with the Earth’s electrons can neutralize free radicals and reduce inflammation. At-home grounding mats or sheets allow for easy integration into daily routines, providing a passive way

to benefit from this natural remedy while sleeping or working. The devices typically plug in to the ground of an electrical outlet and have micro-wires that run through the sheet or mat.

There is not any significant research to say that the practice of grounding will cure ailments or disease, so be wary of those who make these solid claims, however it is widely accepted that the act of being in direct contact with nature is a healthy practice. Earthing and grounding can have positive effects, especially when paired with visualization and breathwork. Standing barefoot on the ground, swimming in a body of water, lying on a forest floor and even breathing the air in natural places can help promote relaxation in the body. In a world where many people do not experience these things as often as our ancestors did, for instance, it can be highly beneficial to simply connect with nature from time to time.

Of course, many people have lifestyles that involve a lot of contact with the Earth; people who garden or farm the soil, those who hike in the wilderness often, or those who simply spend a lot of time outdoors in nature, but there are so many more people whose lives are not filled with these experiences regularly. If that sounds like you, perhaps connecting more with the Earth’s natural energy is something that can help you. It may impact you in unexpected ways, or it may just give you a chance to take a break from the stresses of life which are scientifically known to cause inflammation.

Indoor grounding equipment is something that can be explored, and many people claim it works for them. Because the research is not extensive or conclusive, it is something that individuals need to come to their own conclusions about.

My personal experience is that when I sleep directly on a grounding sheet, my body temperature and sleep pattern is affected. There is something very different happening than when I sleep without the grounding sheet. I have experienced night sweats, and my dreams are often extremely vivid. I can’t help thinking that perhaps I am pushing toxins out of my body. The experience is not particularly pleasant, so it is something I am still just dabbling in. That said, it may be just what I need, if I could get through the initial discomfort that I am experiencing. This very thing can be said for many of the anti-inflammatory techniques in this book, and so once again mindset is ultimately the greatest challenge and also the greatest strength we can harness.

Infrared Therapy

Infrared therapy has gained popularity for its ability to deeply penetrate tissues and promote healing at a cellular level. This therapy utilizes infrared wavelengths to generate heat, which can effectively relieve pain and inflammation in joints and muscles. Infra-red devices are user-friendly and can be used regularly to provide targeted relief from inflammation, stiffness, and even skin conditions.

Benefits of Infrared Therapy

- **Pain Relief:** Helps alleviate muscle and joint pain by increasing circulation and reducing inflammation.
- **Detoxification:** Promotes sweating, which aids in the elimination of toxins from the body.
- **Relaxation:** Induces a state of relaxation by reducing stress and promoting a sense of well-being.

- **Skin Health:** Improves skin tone, elasticity, and clarity by increasing circulation and promoting collagen production.

Using Infrared Therapy at Home

As these types of therapies become popular and more readily available, it is important to be informed.

Types of Infrared Devices

- **Infrared Heat Pads:** These devices emit infrared radiation, and are placed directly upon the area of concern, penetrating much deeper than regular heat pads, making them more effective in relieving pain.
- **Infrared Heat Lamps:** These devices emit infrared radiation that penetrates deep into tissues, promoting circulation and easing muscle tension. They are typically used for targeted areas of the body.
- **Infrared Saunas:** These are larger units that create an environment where infrared radiation heats the entire body. They promote detoxification, relaxation, and cardiovascular benefits.

Safety Precautions

- **Consultation:** Before starting infrared therapy, especially if you have underlying health conditions or are pregnant, consult with a healthcare professional to ensure it’s safe for you.
- **Manufacturer's Instructions:** Read and follow the manufacturer's instructions carefully. Each device may have specific guidelines for use and safety precautions.

- **Distance and Exposure Time:** Maintain the recommended distance from the infrared source to your body as specified in the device instructions. Typically, this is around 18–24 inches for heat lamps.
- **Avoid Overexposure:** Limit sessions to the recommended duration to avoid overheating or skin irritation. Start with shorter sessions (e.g., 15–20 minutes) and gradually increase as tolerated.
- **Hydration:** Drink water before and after infrared therapy sessions to stay hydrated, especially if using an infrared sauna, as these sessions can cause sweating.
- **Skin Protection:** Protect sensitive areas of your skin, such as the face, by covering them with a cloth or towel during therapy. Avoid direct exposure of sensitive areas to infrared radiation.
- **Cooldown Period:** Allow time for your body to cool down naturally after an infrared sauna session. Avoid sudden temperature changes or vigorous activities immediately afterward.

Using Infrared Heat Pads

- **Intensity and Duration:** Typically, these devices have various settings with different temperatures and automatic shut-offs to avoid overexposure. Higher temperatures/longer exposure may not necessarily be more beneficial, so read the instructions and start on the lowest settings.
- **Frequency:** Take time between sessions to allow the area to cool before starting a new session.
- **Contact:** It is advisable not to have direct contact with the skin. Always use a layer of clothing to avoid discomfort or burning.

Using Infrared Heat Lamps

- **Setup:** Position the heat lamp at the recommended distance from the area you wish to treat. Ensure the lamp is securely positioned on a stable surface.
- **Duration:** Start with shorter sessions (e.g., 10–15 minutes) and adjust based on your comfort level. Monitor your skin for any signs of discomfort or overheating.
- **Frequency:** Depending on your needs and the device's guidelines, infrared heat lamp sessions can be repeated daily or as recommended by your healthcare provider.

Using Infrared Saunas

- **Preparation:** Wear lightweight clothing or a towel in the sauna to absorb sweat and prevent direct contact with the sauna's surfaces.
- **Session Length:** Start with shorter sessions (e.g., 10–15 minutes) and gradually increase to 20–30 minutes as your body acclimates.
- **Post-Sauna Care:** After exiting the sauna, rest and hydrate to support the body's natural cooling process. Take a shower to remove sweat and toxins released during the session.

Incorporating infrared therapy into your wellness routine can provide significant benefits when used correctly and safely.

Always prioritize your health and consult a healthcare professional if you have any concerns before starting infrared therapy at home.

Sound-Wave Therapy/Radiofrequency Devices

Sound-wave therapy and radiofrequency devices utilize specific frequencies to stimulate tissues and reduce inflammation. These non-invasive treatments are often used for musculoskeletal conditions and chronic pain management. Portable devices like ultrasound therapy units or radiofrequency massagers offer convenience and allow individuals to administer treatments in the comfort of their homes, providing therapeutic benefits without the need for professional intervention.

Principles of Sound Therapy

- **Resonance:** Sound therapy operates on the principle that specific frequencies can resonate with different parts of the body, including tissues and organs.
- **Healing Properties:** Certain frequencies are believed to promote healing, reduce pain, and alleviate inflammation by influencing cellular vibrations and energy flow within the body.

Using MHz Frequencies for Inflammation

- **Frequency Specific Microcurrent (FSM):** FSM uses specific low-level electrical currents, typically measured in Hz and kHz, to target inflammation and pain. Frequencies in the MHz range are less commonly used directly on the body but can be associated with specific devices or modalities.

- **Ultrasound Therapy:** Ultrasound devices use sound waves with frequencies typically in the MHz range (1–3 MHz) to penetrate deep tissues. This therapy is often used for musculoskeletal issues but can also have anti-inflammatory effects.

Practical Applications and Techniques

- **Ultrasound Therapy Devices:** These devices emit ultrasound waves at specific frequencies (commonly 1–3 MHz) through a handheld applicator. The waves penetrate tissues, generating heat and stimulating cellular repair and circulation. Ultrasound therapy is commonly used by healthcare professionals but can also be available for home use with appropriate training and guidance.
- **Sound Therapy Devices:** Some devices are designed to emit sound frequencies in the MHz range, claiming benefits for inflammation and pain relief. These devices may use vibrational frequencies or electromagnetic fields to influence cellular function and promote healing.
- **Low Cost & At Home:** mHz sound “baths” can be accessed via apps like YouTube even. My favorite mHz for pain is 174 Hz. All I do is find one of these on the app, set my cell phone timer to stop playing after a certain time (like an hour), and then let the mHz play. Often, I fall asleep like this, and it’s very soothing.

Sound therapy utilizing MHz frequencies represents a unique approach to managing inflammation, leveraging the vibrational properties of sound waves to potentially reduce pain and promote healing. While more research is needed to

fully understand its efficacy and mechanisms, integrating sound therapy into a comprehensive treatment plan under professional guidance may offer additional benefits for inflammation-related conditions.

Copper

Copper has long been recognized for its purifying ability and is mentioned in some of the oldest medical texts. Studies show that 99% of bacteria is killed on copper surfaces after two hours. It was used in Ancient Egypt and Ancient Greece to treat various ailments, in powder form. Copper vessels used to purify water have been used for thousands of years in Ayurvedic practices. Its anti-inflammatory action has now earned copper's way into modern health technologies, and wearable copper-infused fabrics are claimed to reduce inflammation and promote circulation when worn close to the skin. The expense of these items is relatively low, so products ranging from compression garments to jewelry make it easy for individuals to incorporate copper's potential benefits into their daily routine. Drinking water from a copper water bottle is believed to help fight impurities in the body, thus reducing inflammation. Adding trace amounts of copper to the body in this way can have an array of benefits as copper is needed for proper immune function, also.

According to a 2023 study conducted by Zangiabadi (et al.), copper-infused fabrics lessen the inflammation "within macrophages". Macrophages are "a type of white blood cell that surrounds and kills microorganisms, removes dead cells, and stimulates the action of other immune system cells". These white blood cells are first responders to injury or intrusion of the cells. While their inflammatory response is useful at the start of an injury or illness, the prolonged

inflammatory effect, as we have learned, is not beneficial and can be detrimental to overall health. Copper targets these cells' inflammatory cytokines, thus preventing the activation of localized inflammation.

I have personally found that during some of my worst moments dealing with my injured foot and ankle, that using a copper infused sock or sleeve has offered invaluable relief, allowing me to sleep when I otherwise just could not, for instance. I have also successfully had a reduction in pain in my elbow and forearm when suffering tendonitis once for a period of time after a strain. The combination of the copper and the compression offered by these garments instantly changed the sensations I was experiencing during times of especially intense discomfort and inflammation. In moments like that, any reduction in the soreness, ache or swelling is a huge relief. My biggest challenge with this technique is just simply remembering that it is available to me and using it (Zhang et al., 2023).

Oxygen/O2 Therapy

Oxygen therapy involves the use of concentrated oxygen to support healing and reduce inflammation. Hyperbaric oxygen chambers, increasingly available for home use, provide pressurized oxygen environments that enhance tissue repair and alleviate symptoms associated with inflammation-related conditions. Portable oxygen concentrators also offer a more accessible option for individuals seeking oxygen therapy outside clinical settings.

Neuromodulation & Piezo-Electric Devices

Devices utilizing neuromodulation techniques, such as pain pens and TENS (Transcutaneous Electrical Nerve Stimulation) patches, deliver electrical impulses to nerve fibers to interrupt pain signals and promote pain relief. These compact, battery-operated devices are designed for at-home use, allowing users to target specific areas of inflammation or discomfort. Piezo-electric therapy devices, which generate electric currents through mechanical pressure, offer another non-invasive option for pain management and inflammation reduction.

Magnetofection

Magnetofection combines magnetic fields with therapeutic agents to enhance their delivery into tissues, promoting targeted treatment of inflammation. Magnetic therapy products, such as magnetic wraps or mattresses, are designed to improve circulation and alleviate pain associated with inflammatory conditions. These products are easy to incorporate into daily routines and provide a passive yet potentially beneficial approach to managing chronic inflammation.

Electromagnetic Therapy

Electromagnetic therapy encompasses a range of devices that emit electromagnetic fields to stimulate cellular activity and reduce inflammation. PEMF (Pulsed Electromagnetic Field) devices, available in portable formats for home use, are designed to promote healing and alleviate pain associated with inflammation-related conditions. These therapies are user-friendly and can be used safely under guidance, offering a non-invasive option for individuals seeking alternative treatments.

Rhizotomies or Other Surgical Options

For severe cases of chronic pain and inflammation, surgical interventions such as rhizotomies (nerve ablations) may be considered. These procedures target specific nerves responsible for transmitting pain signals, providing long-term relief from symptoms. While more invasive than other options discussed, surgical interventions offer a viable treatment pathway for individuals with debilitating inflammation that has not responded to conservative therapies.

The advancements in health technologies and bio-hacks provide individuals with DIY tools to combat inflammation and enhance overall well-being. Whether through the simplicity of grounding or the sophistication of electromagnetic therapy, these innovations offer accessible and effective solutions for managing pain and inflammation from the comfort of home. By integrating these technologies into daily routines, individuals can empower themselves with proactive strategies to support their journey towards optimal health and vitality.

In the pursuit of reducing inflammation, exploring these technologies and bio-hacks opens new possibilities for personalized care and holistic wellness. Embracing these innovations not only addresses symptoms but also fosters a deeper understanding of the body’s capacity for healing and resilience in the face of chronic conditions.

Conclusion

By now you have hopefully assembled, even in your mind, a team of support; trusted healthcare providers, supportive friends and family, and a wealth of knowledge about inflammation that will provide guidance and encouragement as you navigate the complexities of properly managing inflammation in your body.

If you have started trying some of the techniques discussed in this book, hopefully you have uncovered some valuable insights into your body's responses, learned strategies to mitigate inflammation, and discovered what works best for you on your journey toward better health. I hope that you have identified certain practices that resonate with you, effortlessly integrating into your daily routine.

Diving into some of these practices may also highlight areas of difficulty. Perhaps a busy schedule seems to constantly disrupt your progress, or the temptation to prioritize other tasks over self-care is a theme that you struggle to get beyond. Perhaps it's the sedentary habits that contribute to stiffness, the stressors that trigger flare-ups, or the temptations of unhealthy foods that exacerbate inflammation. Realize that within these challenges lie opportunities for growth, like in any game, they are simply opponents to overcome. Recognizing the things that challenge you empowers you to devise strategies to either avoid them altogether or confront them head-on with determination and resilience. Acknowledging difficulties is the important first step toward overcoming them. Maybe it's committing to regular exercise despite a hectic lifestyle or

embracing dietary changes that support inflammation reduction.

Every small change you make for the positive adds up. Not giving up is the greatest success. If you just keep going you soon start to feel relief. If there is only one practice in this collection of anti-inflammatory techniques that you can incorporate into your life, embrace that one thing and see where it takes you over time. The challenges you're willing to face are stepping-stones toward a healthier life, not just in managing your inflammation, but in every sense.

Your Personal Game-Plan

As you prepare to continue beyond these metaphorical pages, consider how you'll organize your time to incorporate these anti-inflammatory practices consistently into your life. Dive deeper into those that resonate most profoundly with you. Maybe oil pulling turns out to help reduce pain and improves sleep for you. Perhaps delving into the science behind nutrition and adopting an anti-inflammatory diet becomes a new healthy passion of yours. Maybe exploring techniques in yoga helps to find greater mobility within your currently stress-filled body. Give these practices some daily time and attention and watch the positive changes in your health.

Create your personal game plan…a holistic approach that encompasses nourishing foods, invigorating movement, restorative practices, and mindful living. Embrace this plan not as a rigid regimen, but as a flexible framework that adapts to your evolving needs and aspirations. Seek out resources that will support your quest for heightened wellness and vitality.

Track and monitor your progress and successes as well as your daily experiences, including: Pain levels, symptoms,

mood and energy shifts, diet, hydration and exercise. Use apps or wearable devices to monitor physical activity, sleep patterns, and stress levels.

Identify healthcare professionals, such as a primary care physician, nutritionist, massage therapist, chiropractor, physical therapist or a knowledgeable yoga instructor for ongoing support and guidance. Join online communities that support the wellness practices you want to incorporate into your long term game. Build your own personal network of people who encourage healthy habits, provide emotional support, and share your journey with them. This support system will be invaluable to you.

Regularly review and adjust your game plan based on your personal experience. Reflect on your achievements while analyzing and addressing areas for improvement to maintain momentum. Utilize the scorecard at the end of this book (just beyond the bibliography) as both a reminder and method for tracking your daily progress.

Embrace Your Journey

The inflammation game is not a competition but a transformative journey toward reclaiming your health and vitality. Celebrate every small victory along the way—the days you feel more energized, the moments of clarity and peace, and the gradual improvements in your overall well-being. Cheers to facing inflammation, armed with knowledge, determination, and a deep-seated commitment to living your best life. One that is filled with vitality, wellness, and the joy of discovering your body's remarkable capacity for healing.

As you navigate the path ahead, trust in your innate ability to heal and rejuvenate. With persistence, courage, and these daily practices, you have all you need to embrace a

life of vibrant health. Keep playing the inflammation game, and keep feeling the positive results echoing in your body, and throughout your life.

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If reading this book has inspired you, taught you something valuable, opened your mind to new practices on your path to greater health, or maybe even motivated you to take that first step toward better wellness, please consider writing a review by clicking this link:

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If your Amazon account is eligible, you can then leave your star rating and/or written review! This not only helps me, but also any readers like you who may wish to find this book and benefit from it in turn.

May health and abundance be with you.

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Inflammation Game Scorecard

Tips & Instructions for Use:

- **Daily Check-Ins:** Check (tick) off each practice that you complete daily. For habits that don’t need daily repetition (like infrared therapy), note the days you use it.
- **Weekly Review:** At the end of each week, review your completed practices. See if there are areas for improvement and adjust goals or focus areas for the following week.
- **Tracking Progress:** Use the scorecard to identify trends in how frequently you practice each technique and to evaluate progress on managing inflammation.
- **Flexibility:** Please add or remove practices to fit your individual needs or to focus more on specific areas.
- **Consistency Focus:** The scorecard emphasizes consistency over quantity to encourage regular habits.

Weekly Anti-Inflammatory Practices Scorecard

Category	Practice	M	T	W	Th	F	Sa	Su
Mind-Body	Gentle Yoga Practice							

Techniques								
	Breathwork							
	Vagus Nerve Stimulation							
Physical Wellness	Hydration (daily goal reached)							
	Movement (30+ mins activity)							
	Quality Sleep (7-8 hrs)							
Diet & Gut Health	Anti-Inflammatory Foods							
	Gut Reset							
Fasting Practices	Intermittent Fasting or 24 hr Fast							
Natural Medicinals	Medicinal Mushroom Supplements or Tea							
	Herbal Tea or Supplements							
	Castor Oil Pack							
	CBD							
Self-Care Therapies	Aromatherapy							
	Herbal Bath Soak							

	Oil Pulling							
Nutritional Support	Magnesium Supplementation or Topical Mag Oil							
	Magnesium Bath Soak							
Cold & Heat Therapy	Cold Therapy							
	Infrared Therapy							
Biohacking Techniques	Grounding/ Earthing							
	Oxygen Therapy							
	Copper Supplementation							
Advanced Techniques	Sound-Wave Therapy							
	Electromagnetic Therapy							
	Neuromodulation & Piezo-Electric Devices							